OVER 500 PRACTICE QUESTIONS

HOW TO PASS

# ADVANCED NUMERACY TESTS

Revised edition

ADVANCED LEVEL

Improve your scores in numerical reasoning and data interpretation psychometric tests

KOGAN PAGE

MIKE BRYON

‘A wealth of relevant practice questions and detailed explanations to help candidates prepare.’

*Sunday Citizen*

‘Questions of a similar level to those in real numeracy tests and so well worth buying.’

A reader review

‘Better than many comparable books on the market for graduate tests.’

A reader review

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## Improve your scores in numerical reasoning and data interpretation psychometric tests

Revised edition

MIKE BRYON

London and Philadelphia

Whilst the author has made every effort to ensure that the content of this book is accurate, please note that occasional errors can occur in books of this kind. If you suspect that an error has been made in any of the tests included in this book, please inform the publisher at the address printed below so that it can be corrected at the next reprint.

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# Part 1

## Psychometric tests and practice

1

# Demonstrate your true potential

## How this book will help

This book provides highly relevant practice questions and explanations that will help candidates prepare for psychometric tests of numerical skills.

Many readers of the existing Kogan Page list of testing books have requested more practice numerical questions and more challenging material than is currently available. In response, this title offers many hundreds of new questions, including four realistic mock tests relevant to numerical skills tests used by employers and educational institutions today.

Like a real test, each chapter starts with easier questions that get progressively harder. Again, in response to readers' requests, many more detailed explanations to answers have been provided.

## The challenge of numerical tests

Employers' numerical tests represent a considerable challenge to candidates who have specialized in numerical disciplines, let alone those who have not. Often accomplished individuals may not have practised their numerical skills for some years and need to revise them if they are to present themselves as the all-round candidate who possesses both numerical and verbal competencies.

Even if you feel confident with your numerical skills, these exercises will help you to achieve, as psychometric tests are used to recruit to many top jobs, careers and professions and there is considerable competition amongst many candidates. You have to be at your very best if you are to succeed in your chosen career, and only practice will ensure that you maximize the advantage you enjoy over others.

## What are psychometric tests?

The user of this book is likely to face a psychometric test in relation to their work or study. Many readers will have applied for a job or course of study and found that the process involves them taking a test. In this context psychometric tests are used by the institution or employer for selection purposes.

The tests comprise a standardized series of problems, either multiple choice or short-answer, taken with either pen and paper, at a computer terminal or, increasingly, online. The conditions under which the test is taken will be the same for everyone. Strict time limits are likely to apply and the results will be marked or scored in a way that allows comparisons to be drawn between candidates. At the graduate and professional end of the testing spectrum they are likely to be tests of endurance lasting many hours. They comprise a series or battery of tests sat one after the other. It is therefore all the more important for candidates to adopt strategies to maximize their score.

## What to expect on the day

Think back to the days of examinations at school or university. You will attend a test centre with a room set out either as an examination hall with small desks or with banks of computer terminals, depending on whether you face a paper and pen or computer administered version of the test.

Other candidates are very likely to be present. In some instances there may be many other candidates. A test administrator will welcome you and explain the process. He or she will be following a prepared script and will be happy to answer any questions that you may have, although the answers given may seem rather brief or superficial. The administrator will be reluctant to stray far from the script so that all candidates (including those who have attended on other days and will not have heard your question) receive the same information and experience the same test conditions.

If you suffer a disability that may affect your performance in the test or requires you to sit the test under different circumstances, contact the organization that has invited you straightaway.

## Interpreting your score

The scoring of tests is quite complex and individuals responsible for the interpretation of results should be trained to a level recommended by the British Psychological Society. Scoring involves comparing a candidate's score against the scores of a sample of the wider population with broadly similar backgrounds. Unsurprisingly, there is a tendency among recruiters to assume that the higher a candidate scores, the greater the candidate's likely performance in the job. Equally common is the tendency for the recruiter to be relieved that poor-scoring candidates, whom the test predicts will not perform well in the job, have been identified in such a clear-cut way.

However, doing well or badly in a test does not necessarily mean that you have or do not have the potential to perform well in a particular job. Tests are at best only indicators of potential.

Had you been less nervous or better prepared on the day of the test then you might have realized a considerably different score and been classified quite differently. Performance in the majority of jobs is a difficult thing to define and is influenced by a wide range of factors. The occupational psychologist must attribute to the job in question a single set of criteria against which to assess performance, and this risks attributing to the workplace too simplistic a model of what makes someone good at his or her job.

If you fail a test it does not mean that you do not have the potential to do the job or pursue the career. You may be perfectly able to do the job and indeed would pass the test if you took it again. Ask the organization to provide you with feedback on your score. Some organizations are happy to do this and their comments will help you to identify any areas in which you need to improve. Try to recall and note down the types of question and the level of difficulty. Plan a new programme of practice and concentrate your efforts on improving your skills in the areas in which you did least well.

Hundreds more practice questions and tests are available in the companion title *The Advanced Numeracy Test Workbook*. Additional advance material is also available in the *Graduate Psychometric Test Workbook*. Both titles are published by Kogan Page.

2

# The winning approach

The ability to do well in a test is not some innate quality over which you have no influence. Your score is to a large extent dependent on your approach on the day and the degree to which you are prepared for the challenge.

How you approach a test is critical to success. It is important that you treat it as an opportunity to demonstrate your true potential. Avoid feelings of resentment or a fear of failure whereby you commit less than your full worth. If passing the test means that you can realize a life goal then you have every reason to try your best and attend fully prepared.

Studies have shown that the difference between the soloist in an orchestra, the top athlete or chess grandmaster and the rest is often down to practice, practice, practice. The key is to stretch yourself and not simply repeat tasks you can already do easily. Practice before a test is essential and can make a significant difference to your performance. Practice makes a difference in many types of test, including numerical tests. It is obvious that practice will help because it means you are likely to make fewer mistakes and are faster against the often-tight time constraints. Importantly, practice allows you to revise forgotten rules and develop a good test technique. This involves becoming familiar with the format of the questions and maximizing your score through, for example, educated guessing.

Remember, when used as a part of a selection process you should treat a psychometric test like a competition in which you *must* do better than other candidates. If passing the test is important then you should be prepared to make a major commitment in terms of practice before the real test, starting as soon as possible. Other candidates will make such a commitment and if you don't, you risk coming a poor second.

# Key stages to a winning approach

Under the two headings 'Work harder' and 'Work smarter' below, there are eight sections offering advice and tips on the best approach to adopt when preparing for a psychometric test.

## Work harder

### Make time for practice

Given that you use your time sensibly and that you work in a way which reduces your weaknesses and maximizes your strengths, the amount of time you can devote to intelligent, directed practice will be crucial. You have already decided that this test is important to you, so you need to make sure you find time to do yourself justice and to demonstrate your potential. Those who succeed are often those with the greatest desire, the greatest tenacity.

Start your practice as soon as you suspect you might have a test (though you should make sure you are working on the right kind of exercise – see 'Work smarter' below). Try to place yourself somewhere on a scale between someone reasonably confident about numeracy tests and someone whose numerical skills are very rusty. If you fall within these bounds then the amount of practice you need to undertake is likely to lie somewhere between a minimum of 12 hours and putting aside a few hours a day for three or four weeks. Plan your practice right up to the day of the test, but try to leave yourself a little margin in case you underestimate the challenge and need more time than you initially allowed.

## Work smarter

### Decide how to practise

Everyone can improve his or her test score with practice and the more you practise something you find challenging the better you will do. However, the optimum amount of practice depends on your starting point. For example, the candidate who is otherwise likely to fail by only a few marks stands to gain a lot very quickly because a little practice is almost certain to mean that they pass something they would otherwise have failed. Someone who has not used their numerical skills for some years will need to relearn the rules and regain their lost speed and accuracy before they can demonstrate their true potential. This may require a quite considerable commitment. A candidate who never got on with maths or science at school and specialized at university in an arts subject may need to commit many weeks of effort to master skills they had previously managed without. Be clear about what you need to practise and make time to do it.

### Start your programme of practice in good time

Try to place yourself somewhere on a scale between reasonably confident and someone whose numerical skills are very rusty. If you fall within these bounds then the amount of practice you need to undertake is likely to lie between a minimum of 12 hours and putting aside a few hours a day for three or four weeks.

It is best to practise up to the day before the test. But try to leave yourself a little scope in case you underestimate the challenge and need more time than you initially allowed.

### Be clear as to the type of test you face

Improvements in scores are obtained by practising on material similar to that which occurs in the real test. It is essential, therefore, that you establish the types of question you face and find material as similar as possible. The organization might have sent you a description of the test or have a website that contains a number of sample questions. If this is not the case, call them and request a description of the test and as much information as

possible. Every bit of information helps, so try requesting a verbal description over the telephone or simply ask them to list the titles of the sub-tests that make up the battery and the name of the publisher. Establish if the test is administered with paper and pen or at a computer terminal, for how long you need to attend and whether or not a calculator is provided. Be aware of the fact that sample questions are usually less difficult examples of the type of question contained in the real test.

Plan to undertake two sorts of practice:

1. Practice without time constraint and in an informal relaxed situation. The aim of this sort of practice is that you realize the demands of the questions and the mathematical principles behind them and build up your confidence. It is fine to work collaboratively with someone who also faces the test or a mentor willing to help.

   If your maths is weak or rusty then this type of practice will form the bulk of your efforts. Make sure that you practise both on realistic questions and on the content of some of the very good revision study guides and textbooks that are available for GCSE and A-level students, for example.
2. Practice on realistic questions against a strict time constraint and under realistic test-like conditions. The aim of these 'mock tests' is to get used to answering the questions under the type of conditions that will exist when you take the real test. This type of question helps you to avoid mistakes when under pressure and to develop a good test strategy. You should aim to take a minimum of four mock tests.

   It is important to get the right balance between speed and accuracy as more correct answers will give you a higher score, but you may well be penalized for giving incorrect answers or no answers.

## Collect appropriate practice material

Do not spend time or money on material that is *not* similar to the real questions in the test that you face. The content of the book should contain material that is relevant to any numerical part of

the test. Further material is available from the list of Kogan Page testing titles at the back of this volume.

## Concentrate on your personal challenges

We all like to spend time on things at which we excel. But when practising for a test it is essential that you focus most of your efforts on improving your areas of weakness. This may require a degree of courage and a critical review of your strengths and weaknesses. If you have always been less good at maths, now is the time to put this situation right.

It may prove boring, painful even, but a programme of revision and practice under test-like conditions will afford you the speed, accuracy and skills to do well in employers' numerical tests. Give yourself sufficient time to succeed and don't give up or shy away from asking for help; don't fool yourself that you understand something if you don't. Keep going over explanations and examples until you understand the principle fully, and then keep practising at realistic questions until you are confident and accurate. Try working with a variety of texts that are all likely to offer slightly different explanations. Libraries and bookshops stock an extensive range of revision and study books on, for example, mathematics and business studies that explain well the key principles examined by these tests.

Your practice should aim to make sure that you are confident in all aspects of the tests, including strategies for maximizing your score, covered in the next section.

## Adopt the very best of test strategies

The best-scoring candidates arrive very well prepared. You should attend on the day of your test fully aware of the demands. Before the start of the test, the test administrator or computer program will allow you to review a number of sample questions and go over the amount of time allowed. All this information should be entirely familiar and your programme of practice should have covered all the types of question described.

The top-scoring candidates are the ones who look forward to the test as an opportunity to demonstrate their abilities. They

have confidence in themselves and preparation is key to confidence. They realize that they have nothing to lose if they do their best and 'go for it'.

It is important to organize your time during the test. Keep a check on how long you spend on any one question and keep going right up to the end. You have to get right a balance between speed and accuracy. This again is something that takes practice, especially as you may well suffer anxiety during the real test and therefore be prone to making more mistakes.

Estimating answers and modifying sums to more convenient figures so that calculations are faster sometimes pays. You can then look at the suggested answers and pick out the correct one.

You will get some answers wrong. It is better that you attempt every question and risk getting some wrong than check every answer twice, only to be told that you have run out of time.

If you find a series of difficult questions – keep going. The next section may comprise something at which you excel, so never give up, just move on.

Simply guessing at answers is unlikely to help. This is because many tests penalize wrong answers or unanswered questions. If you cannot answer a question it is far better to guess in an educated manner. This involves looking at the suggested answers and attempting to rule some of them out as definitely wrong. You then guess from the remaining options and hopefully increase your chances of guessing correctly.

Practise managing your time in a way that ensures you have enough time to attempt every question and apply educated guessing to any questions you cannot answer.

## Make best use of this book

At the time of going to print I believe the material in this book will help you revise the numerical skills examined by tests currently used by major employers and provide you with many hours' worth of relevant practice questions. But, as with any study aid, before you invest time or money in using the book, make sure the material within it is in fact relevant to the particular challenge that you face.

When you practise on these questions, try not to use a calculator. In some tests a calculator is provided but you need to be able to see that the answer you get using a calculator is broadly correct, so practice at manually working out the sums is still essential.

If you are having problems finding practice material that is similar to or as difficult as the test you have to take, then by all means contact me at help@mikebryon.com and if I know of any other sources I will be glad to let you know. Please note that you will need to give me a clear idea of the type of test you face.

I apologize in advance if you discover an error in these practice questions; try not to allow it to undermine your confidence in the value of practice; and try not to take too dim a view of this book because it most definitely does contain valuable practice material. I have made every effort to identify all the mistakes that somehow creep into a text of this kind and I hope I have not missed too many. I will be glad to hear of any that I have missed in order that mistakes can be removed at the next reprint.

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# *Part 2*

## *Hundreds of really relevant practice questions*

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3

# Quantitative reasoning

Tests start easy and get harder. Drive home your advantage by making sure you get all the available early marks and complete the easy sections in the minimum of time. This will place you at a considerable advantage in terms of having both maximum time to tackle the rest of the test and an unbeatable initial score on which to build a winning performance.

This chapter reviews the methods and rules that underlie psychometric tests of numerical skills. Use it to build up speed and confidence and revise the basics.

Answers and many detailed explanations are found in Part 3.

Be sure that you can work these sums manually as well as with a calculator.

## Practice questions – revise the basics

1. Which of the following letters of the alphabet has a rotational symmetry order of 2? (Ignore any unintentional distortion due to the font or printed image.)

   X S P

   Answer: ☐

2. What is the order of rotational symmetry for the letters X and P? (Again, ignore the effects of the font or print.)

Answer:

3. What could the following formula be used to calculate?

$$\frac{360 \text{ degrees}}{\text{Number of sides}}$$

A The exterior angle of a regular polygon
B The interior angle of a regular polygon
C The exterior angle of an irregular polygon
D The interior angle of an isosceles triangle

Answer:

4. Complete the following conversions between fractions, decimals and percentages:

| | | |
|---|---|---|
| $^1/_2$ | | |
| | 0.75 | |
| | | 20% |
| $^3/_5$ | | |
| | | 37.5% |
| | 0.25 | |

5. Which of the definitions is the meaning of median?

A Most common answer
B The range from smallest to biggest
C The middle number

Answer:

6. If W is an integer, what does $50 \leq W < 100$ mean?

Answer:

7. What does the $\leq$ symbol mean?

Answer:

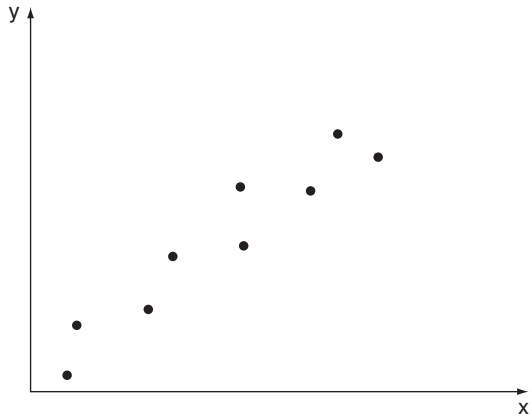
8. What does the < symbol mean?

Answer:

9. What does the > symbol mean?

Answer:

10. Which statement best describes the scatter graph?




A Strong negative correlation
B Poor correlation
C Reasonable positive correlation
D Reasonable negative correlation

Answer:

11. A bag contains six yellow discs, five white and nine black. If one disc is selected, what is the probability of it being black?

Answer:

12. What is the chance of not getting a black disc?

Answer:

13. Express 9/20 as a percentage and a decimal.

Answer:

14. For the following set of numbers find the mean:

2 6 9 13 14 19

Answer:

15. For the following set of numbers find the median and range:

2 6 9 13 14 19

Answers:

Median:

Range:

16. Which of the following numbers would be included in the group $20 \leq x < 70$?

| A | B | C | D |
|---|---|---|---|
| 35 | 72 | 19 | 30 |

Answer:

17. List all the possible outcomes if you were to toss two coins.

Answer:

18. If you were to toss a coin and roll a six-sided dice, what is the probability of getting a head and a 1?

Answer:

19. 'Congruent' means:

| A | B | C | D |
|---|---|---|---|
| The same | The same size | The same shape | Similar |

Answer:

20. Which of the following is a type of transformation?

| A | B | C | D | E |
|---|---|---|---|---|
| Translation | Enlargement | Rotation | Reflection | All of these |

Answer:

21. What is 3 to the power of 6?

Answer:

22. What is 4 cubed?

Answer:

23. What power of 2 makes 16?

Answer:

24. A square has an area of 25 $m^2$. What is the length of its sides?

Answer: ☐

25. Which of the following formulas describes the relationship between the diameter and radius of a circle?

A
$d = 2r$

B
$d = \pi r$

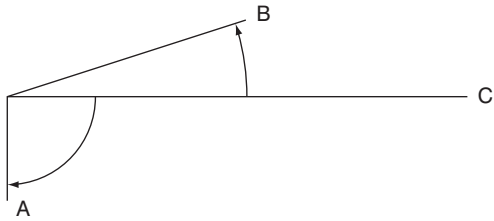
C
$d = 2/r$

Answer: ☐

26. As a decimal $\pi$ is approximated as 3.142. What is this as a fraction?

Answer: ☐

27. Angles in mathematics can be either positive or negative. Which of the angles illustrated is positive?




C–A C–B

Answer: ☐

28. How many common factors does the number 32 have (include trivial factors)?

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |

Answer:

29. What is the highest common factor of 24 and 32?

Answer:

30. What are the common factors of 13?

Answer:

31. The common factors of 19 are 1 and 19 only. What does this make 19?

Answer:

32. How many of the following are prime numbers?

4, 5, 7, 12, 17

Answer:

33. How many common factors has 48 (exclude the trivial factors)?

| A | B | C | D | E |
|---|---|---|---|---|
| 5 | 6 | 7 | 8 | 9 |

Answer:

34. Find the highest common factor of 18 and 54.

Answer:

35. What does $2^3$ equal?

| A | B | C | D | E |
|---|---|---|---|---|
| 4 | 5 | 6 | 7 | 8 |

Answer:

36. What does 2 to the power of 5 equal?

Answer:

37. What does 3 to the power of 4 equal?

Answer:

38. 3 to the power of 4 divided by 3 to the power of 2 is the same as:

A 13 divided by 6
B 81 divided by 9
C 27 divided by 6
D 27 divided by 9

Answer:

39. 16 × 32 is the same as:

A 2 to the power of 8 × 2 to the power of 16
B 2 to the power of 3 × 2 to the power of 4
C 2 to the power of 4 × 2 to the power of 5
D 3 to the power of 6 × 2 to the power of 7

Answer:

40. If the radius of the earth is 6,378 km, what is the circumference?

Answer: ____

41. Convert the following percentages into decimals:

5% _____

17.5% _____

25% _____

150% _____

0.5% _____

42. Find 117 as a percentage of 565.

Answer: ____

43. Find 126 as a percentage of 360.

Answer: ____

44. Find 272 as a percentage of 680.

Answer: ____

45. Find 56 and 42 as a percentage of 280.

Answer: ____

46. Find 301 as a percentage of 430.

Answer: ____

47. Increase 90 by 17.5%.

Answer:

48. Increase 85 by 15%.

Answer:

49. Increase 15 by 60%.

Answer:

50. Decrease 140 by 24%.

Answer:

51. Decrease 63 by 20%.

Answer:

52. Decrease 73 by 82%.

Answer:

53. What amount when increased by 20% gives 300?

Answer:

54. What amount when increased by 12% gives 420?

Answer:

55. What amount when increased by 50% gives 645?

Answer:

56. Simplify 40:240.

Answer:

57. Simplify 60:390.

Answer:

58. Simplify 75:350.

Answer:

59. Simplify 9:63.

Answer:

60. Simplify 95:247.

Answer:

61. Divide 63 into the ratio of 3:6.

Answer:

62. Divide 132 into the ratio of 2:3:1.

Answer:

63. Divide £12.00 into the ratio 9:7:8.

Answer:

64. Find the value of $x$:

$3x - 3 = 18$

Answer:

65. Find the value of $x$:

$5(x + 6) = 75$

Answer:

66. Find the value of $x$:

$6x + 10 = 3x - 6$

Answer:

67. Find the value of $x$:

$2(x + 9) = 3(2x - 3)$

Answer:

68. Find the value of $x$:

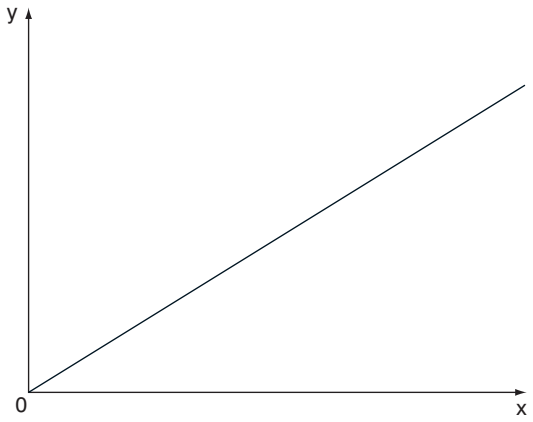
$1/2\ (x + 2) = 1/8(3x + 4)$

Answer:

69. Why are these types of equations called linear equations?

Answer:

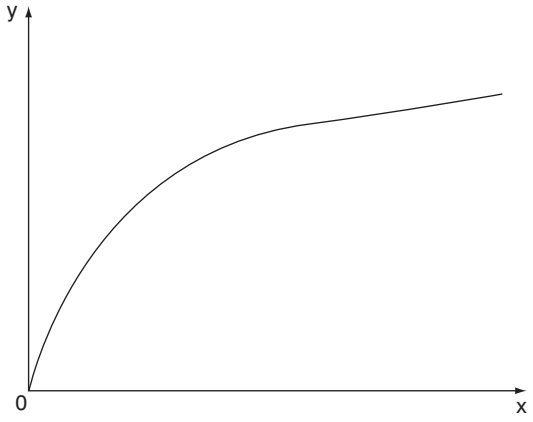
70. Which equation corresponds to this graph?




$Y \propto x$ $Y \propto \sqrt{x}$ $Y \propto x^2$

Answer:

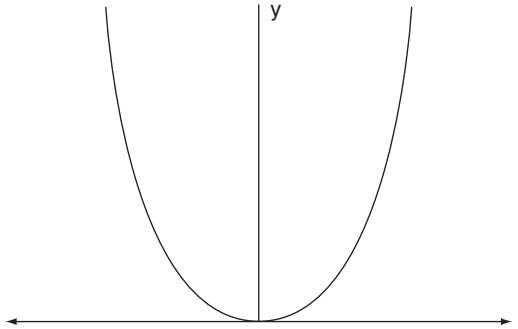
71. Which equation corresponds to this graph?




$Y \propto x$ $Y \propto \sqrt{x}$ $Y \propto x^2$

Answer:

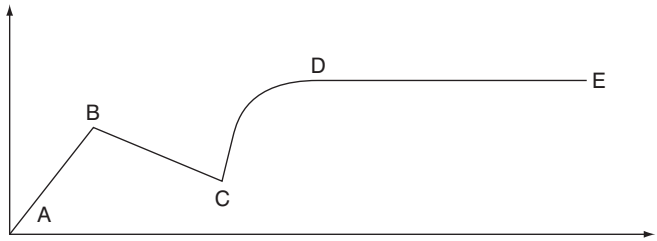
72. Which equation corresponds to this graph?




$Y \propto x$ $Y \propto \sqrt{x}$ $Y \propto x^2$

Answer:

73. Interpret the following graph to answer the questions:




Between what points is the object stationary?

| | | | |
|---|---|---|---|
| A | B | C | D |
| A–B | B–C | C–D | D–E |

When is the object's distance increasing steadily?

| | | | |
|---|---|---|---|
| A | B | C | D |
| A–B | B–C | C–D | D–E |

When is the object going back on itself?

| | | | |
|---|---|---|---|
| A | B | C | D |
| A–B | B–C | C–D | D–E |

Answer:

74. To estimate the number of commuters who cycle to work, 30 randomly selected cyclists a day are stopped over five days. On average 3 cyclists per day are found to have taken part in the survey before. Estimate the total population of cyclists.

Answer:

75. A culture of bacteria grows by a ratio of 1:2 every two hours. Describe the size of the culture after 10 hours.

Answer:

76. A currency is devalued by a factor of 0.02 a year. What % of its original value will it have after four years? Express your answer to the nearest full percentage.

Answer:

77. A 1 kg block of ice is melting by 9/10th of its mass each hour. What will be its mass after three hours?

| A | B | C | D |
|---|---|---|---|
| 100 gm | 10 gm | 1 gm | 0.1 gm |

Answer:

78. A town with a population of 2,000 is expected to increase by 30% per annum. What will its population be in four years' time?

Answer:

79. A customer base of 1,500 has grown by a factor of 0.08 each year. For how many years must this rate of growth continue in order that the customer base exceeds 2,000 clients?

Answer:

80. From the following frequency table, answer the questions that follows:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | | | | | 5 | 5 | 6 | 7 | |
| 6 | | 3 | 4 | 4 | 5 | 5 | | | |
| 7 | 2 | 3 | 4 | 4 | 5 | | | | 9 |
| 8 | 0 | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

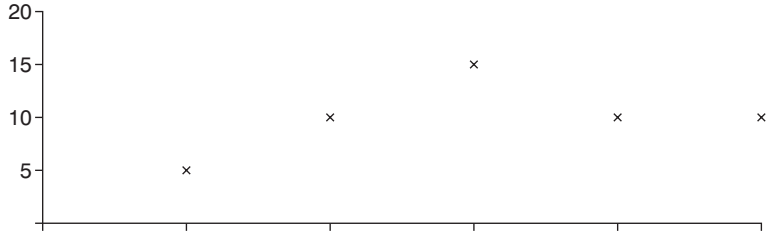
Which group has the highest frequency?

Answer: ____

81. What is the median result?

Answer: ____

82. Find the three-point moving average for the following data points (express your answer to the nearest decimal point).




Answer: ____

83. A sample of 200 must be proportional to the total, which comprises:

| | |
|---|---|
| Yellow shirts | 1,500 |
| Blue shirts | 2,000 |
| Red shirts | 500 |

What would be a proportionally representative sample?

Answer:

84. Which of the two measures of variation would you use to analyse data that had a distinct positive skew?

1. Standard deviation
2. Inter-quartile range

Answer:

85. A bag contains 20 balls, 10 of which are white and 10 black. What are the odds of drawing two black balls one after the other? Assume that the first black ball is replaced after it is drawn.

| A | B | C | D |
|---|---|---|---|
| 1 in 3 | 1 in 2 | 1 in 4 | 1 in 8 |

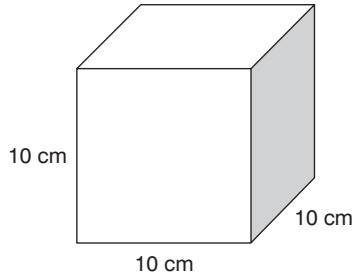
Answer:

86. A bag contains 20 white balls. The probability that three white balls are drawn is:

| A | B | C | D |
|---|---|---|---|
| 0.5 | 100 | 1 | 3/20 |

Answer:

87. Calculate the surface area of this shape:




| A | B | C | D | E |
|---|---|---|---|---|
| 10 $cm^2$ | 60 $cm^2$ | 600 $cm^2$ | 1000 $cm^2$ | 10,000 $cm^2$ |

Answer: ☐

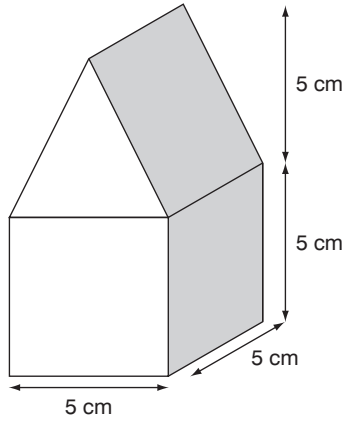
88. Solve the following equation:

$(4^2 - 3^2) - 2^4 =$

| A | B | C | D | E |
|---|---|---|---|---|
| 8 | 9 | 10 | 17 | 23 |

Answer: ☐

89. What is the volume of this shape?




| A | B | C | D | E |
|---|---|---|---|---|
| 125 cm$^3$ | 167.5 cm$^3$ | 187.5 cm$^3$ | 217.5 cm$^3$ | 250 cm$^3$ |

Answer:

90. Complete the following sequence:

17, 19, 23, 29, ?

| A | B | C | D | E |
|---|---|---|---|---|
| 31 | 33 | 35 | 36 | 39 |

Answer:

91. Solve the following equation:

$$\frac{4x^3}{x^2}$$

| A | B | C | D | E |
|---|---|---|---|---|
| 4 | $4x$ | $4x^2$ | $x^2$ | 16 |

Answer:

92. Solve the following:

20% of all trains are cancelled
20% of trains that run break down
Out of the trains that are not cancelled and do not break down, one quarter arrive late

What percentage of all trains arrive on time?

| A | B | C | D | E |
|---|---|---|---|---|
| 40% | 45% | 48% | 54% | 60% |

Answer:

93. What is the value of $x$ in this sequence?

1, 3, ?, $x$, ?, 21, 28

| A | B | C | D | E |
|---|---|---|---|---|
| 7 | 9 | 10 | 13 | 17 |

Answer:

94. There are six times as many red blocks as there are green blocks. There are twice as many blue blocks as there are red blocks. What is the ratio of blue blocks to green blocks?

| A | B | C | D | E |
|---|---|---|---|---|
| 6:2 | 2:1 | 3:1 | 1:3 | 12:1 |

Answer:

95. Compound interest is calculated on a loan at a rate of 10% per annum. Assuming no repayments are made, how much will be owed after three years on a £10,000 loan?

| A | B | C | D | E |
|---|---|---|---|---|
| £12,000 | £13,000 | £13,100 | £13,300 | £13,310 |

Answer: ☐

96. A barrel containing 200 l of water leaks at a rate of 500 cl per day. How many days will it take for the barrel to empty?

| A | B | C | D | E |
|---|---|---|---|---|
| 4 | 25 | 40 | 250 | 400 |

Answer: ☐

97. Out of 2,000 companies, 180 will cease trading in a given year. What is this expressed as a percentage?

| A | B | C | D | E |
|---|---|---|---|---|
| 4.5% | 6% | 9% | 12% | 15% |

Answer: ☐

98. How much carpet do I need to cover one room which is 12 m × 18 m and a second room which is 15 m × 15 m?

| A | B | C | D | E |
|---|---|---|---|---|
| 60 $m^2$ | 360 $m^2$ | 441 $m^2$ | 541 $m^2$ | 675 $m^2$ |

Answer: ☐

99. How many metres cubed of water are there in a full swimming pool which is 25 m long, 12 m wide and has an average depth of 6 m?

| A | B | C | D | E |
|---|---|---|---|---|
| 180 | 900 | 2,700 | 1,800 | 36,000 |

Answer: ☐

100. In a team game the total score for all 22 players was 462. What was the average (mean) score?

| A | B | C | D | E |
|---|---|---|---|---|
| 17 | 18 | 19 | 20 | 21 |

Answer: ☐

101. A salesperson needs to generate £5,000 profit for the company each month. She sells two products. On product A she makes 25%, on product B she makes 40% profit. If she sold £12,000 worth of product A in a given month, what value of product B must she sell to reach the target?

| A | B | C | D | E |
|---|---|---|---|---|
| £5,000 | £7,500 | £8,200 | £9,000 | £11,000 |

Answer: ☐

102. A computer depreciates by 20% of its original value each year. If it cost new £2,400, what is its value after three years?

| A | B | C | D | E |
|---|---|---|---|---|
| £840 | £960 | £1,230 | £1,360 | £1,540 |

Answer: ☐

103. If it rains on 73 days a year in Italy, what are the odds that it will rain on any given day?

| A | B | C | D | E |
|---|---|---|---|---|
| 4 to 1 | 5 to 1 | 6 to 1 | 10 to 1 | 20 to 1 |

Answer: ☐

104. Tossing two coins, what is the probability that at least one is a head?

| A | B | C |
|---|---|---|
| 1/2 | 2/3 | 3/4 |

Answer: ☐

105. Tossing two coins, what is the probability that both coins are heads?

| A | B | C |
|---|---|---|
| 1/4 | 1/2 | 3/4 |

Answer: ☐

106. If tossing three coins, what is the possibility that at least one is a head?

| A | B | C |
|---|---|---|
| 5/8 | 6/8 | 7/8 |

Answer: ☐

107. If tossing three coins, what is the probability that none of them are heads?

| A | B | C |
|---|---|---|
| 1/2 | 1/4 | 1/8 |

Answer: ☐

Using the equations below, answer the following questions.

$Y_1 = X^2 + 1$
$Y_2 = 2$

108. For what $X$ values are $Y_1 = Y_2$?

| A | B | C | D |
|---|---|---|---|
| $X = 0$ | $X = 2$ | $X = 3$ | $X = 1$ |

Answer: ☐

109. The following is true: $Y_1 > Y_2$

| A | B | C |
|---|---|---|
| for all $X > 0$ | for all $X < -1$ | for all $X < 0.5$ |

Answer: ☐

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4

# Data interpretation

This type of test comprises tables, graphs or charts of information which you must interpret in order to answer the questions.

Be careful to rely only on the information that is given, even if you believe it to be wrong or out of date. It often pays to examine the questions before spending too much time interpreting the data.

Practise on the following questions. Answers are given in Part 3.

| TEAM | Won | Drawn | Lost | Points |
|---|---|---|---|---|
| A | 3 | 1 | 0 | 10 |
| B | 3 | 0 | 1 | 9 |
| C | 2 | 0 | 2 | 6 |
| D | 2 | 0 | 2 | 6 |
| E | 0 | 1 | 2 | 1 |
| F | 0 | 0 | 3 | 0 |

The above table shows the results and points scored from a league of six teams. Using this table answer the questions overleaf:

1. How many points are given for:

| A | B | C |
|---|---|---|
| a win? | a draw? | a loss? |

Answer: ☐

2. How many games have been played?

| A | B | C | D | E |
|---|---|---|---|---|
| 8 | 9 | 10 | 11 | 12 |

Answer: ☐

3. If each team plays every other team once during the season, how many games remain to be played?

| A | B | C | D | E |
|---|---|---|---|---|
| 4 | 5 | 6 | 7 | 8 |

Answer: ☐

4. The team with the most points at the end of the season wins the league. How many teams could achieve this?

| A | B | C | D | E |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Answer: ☐

5. The team with the least points at the end of the season wins the league. How many teams can finish bottom of the table?

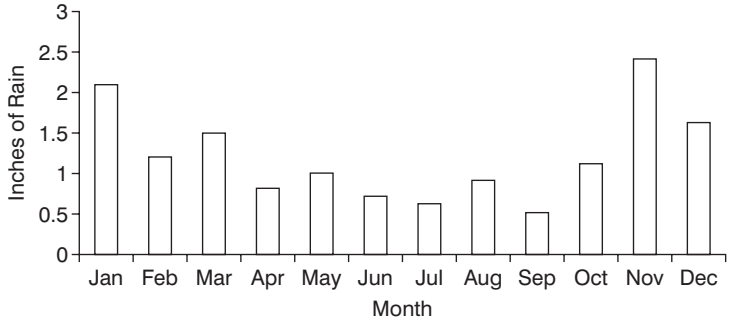
| A | B | C | D | E |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

Answer: ☐

6. What is the highest possible value for the points of all the teams combined at the end of the season?

| A | B | C | D | E |
|---|---|---|---|---|
| 40 | 41 | 42 | 43 | 44 |

Answer:




The above graph shows rainfall for a given country in terms of inches of rainfall per month. Using this graph answer the following questions:

7.

a. Which month had the highest level of rainfall?
b. Which month had the lowest level of rainfall?

Answer:

8. Which month had the highest absolute increase in rainfall compared to the previous month?

| A | B | C | D | E |
|---|---|---|---|---|
| November | December | January | February | March |

Answer:

9. Which month had the highest decrease in rainfall compared to the previous month?

| A | B | C | D | E |
|---|---|---|---|---|
| November | December | January | February | March |

Answer:

10. Which month had the lowest increase in rainfall compared to the previous month?

| A | B | C | D | E |
|---|---|---|---|---|
| February | March | April | May | June |

Answer:

11. What is the total rainfall for the year?

| A | B | C | D | E |
|---|---|---|---|---|
| 4.4 | 14.4 | 24.4 | 34.4 | 44.4 |

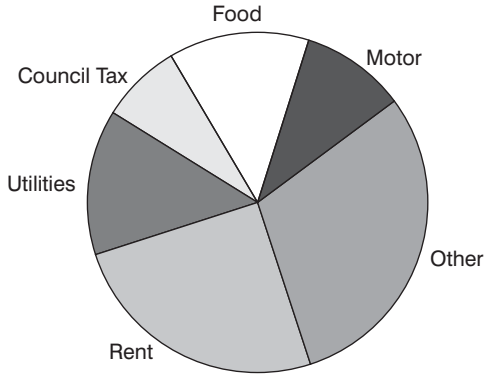
Answer:

12. Which month was closest to the average monthly rainfall for the year?

| A | B | C | D | E |
|---|---|---|---|---|
| February | March | April | May | June |

Answer:

The following graph shows the average breakdown of monthly expenses for a household. Using this graph as a starting point, answer the following questions:




13.

a. Which category of expenses is the greatest?
b. Which category of expenses is the smallest?

Answer:

14. Which of the following best estimates the percentage of expenditure that goes towards rent?

| A | B | C | D | E |
|---|---|---|---|---|
| 10% | 18% | 25% | 31% | 48% |

Answer:

15. If the average total expenditure each month is £1,440 per month, how much is spent on rent?

| A | B | C | D | E |
|---|---|---|---|---|
| £300 | £310 | £320 | £340 | £360 |

Answer:

16. If a flat rate of 25% is payable on all income, how much must be earned to pay for the rent alone?

| A | B | C | D | E |
|---|---|---|---|---|
| £450 | £460 | £470 | £480 | £490 |

Answer: ☐

17. If the rent costs £360 per month, the household saves 20% of its income after tax each month and tax is paid at a flat rate of 25% on all income, how much does the household earn before tax each year?

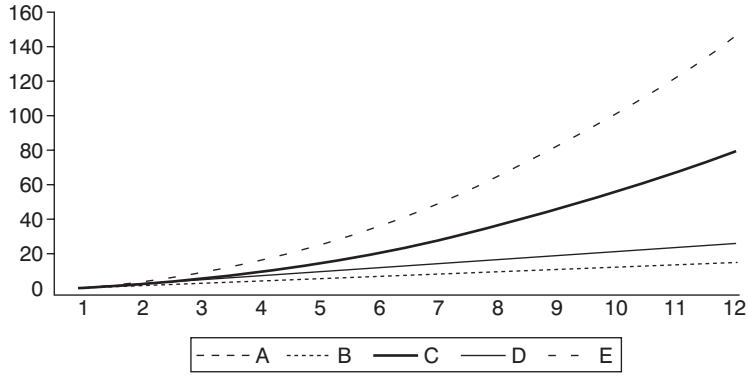
| A | B | C | D | E |
|---|---|---|---|---|
| £28,000 | £28,400 | £28,600 | £28,800 | £29,000 |

Answer: ☐

18. In the scenario in question 17, how much does the household save per year?

| A | B | C | D | E |
|---|---|---|---|---|
| £2,420 | £2,620 | £2,820 | £4,020 | £4,320 |

Answer: ☐




The above graph shows the population levels of five bacteria cultures measured every hour over a period of 12 hours. Using this graph answer the following questions (please note: line A runs along the *x* axis):

19. The rate of growth of culture A is best described as:

| A | B | C |
|---|---|---|
| Zero | Linear | Exponential |

Answer: ☐

20. The rate of growth of culture B is best described as:

| A | B | C |
|---|---|---|
| Zero | Linear | Exponential |

Answer: ☐

21. The rate of growth of culture C is best described as:

| A | B | C |
|---|---|---|
| Zero | Linear | Exponential |

Answer: ☐

22. The rate of growth of culture D is best described as:

| A | B | C |
|---|---|---|
| Zero | Linear | Exponential |

Answer: ____

23. The rate of growth of culture E is best described as:

| A | B | C |
|---|---|---|
| Zero | Linear | Exponential |

Answer: ____

Still referring to the last graph, and considering the following equations where P represents population and h represents hours elapsed, answer the following questions:

| | |
|---|---|
| Equation i) | $P = 2h$ |
| Equation ii) | $P = h$ |
| Equation iii) | $P = h^2$ |
| Equation iv) | $P = h \times 2$ |
| Equation v) | $P = h^2 - h$ |
| Equation vi) | $P[i] = P[i - 1] + h$, where P[i] is the population at hour i |
| Equation vii) | $P = 0$ |
| Equation viii) | $P = 1$ |
| Equation ix) | $P = P$ |
| Equation x) | $P = h^3$ |

24. Which of the above equations best describes the apparent growth of culture A?

Answer: ____

25. Which of the above equations best describes the apparent growth of culture B?

Answer:

26. Which of the above equations best describes the apparent growth of culture C?

Answer:

27. Which of the above equations best describes the apparent growth of culture D?

Answer:

28. Which of the above equations best describes the apparent growth of culture E?

Answer:

29. On the basis of the information given, what would be the best estimate of the bacterial population of culture A after 16 hours?

| A | B | C | D | E |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

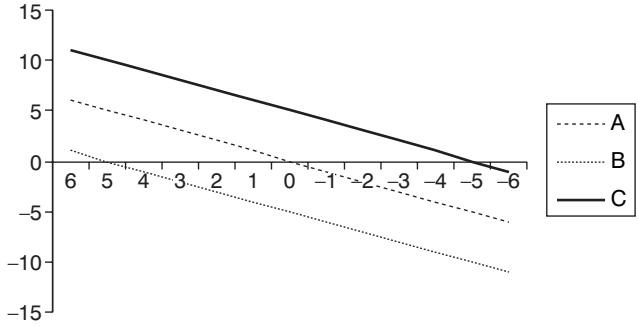
Answer:

30. On the basis of the information given, what would be the best estimate of the bacterial population of culture D after 200 hours?

| A | B | C | D | E |
|---|---|---|---|---|
| 200 | 300 | 400 | 500 | 600 |

Answer:

Examine the graphs below and answer the questions that follow:



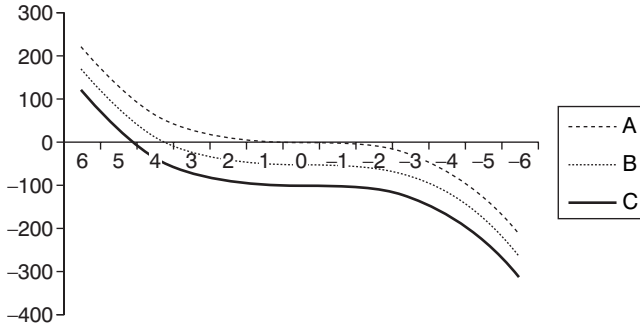

31. Which of A, B or C fits the formula $y = x - 5$?

Answer: ____

32. At which point does line C cross the $x$ axis?

| A | B | C | D | E |
|---|---|---|---|---|
| –1 | –2 | –3 | –4 | –5 |

Answer: ____



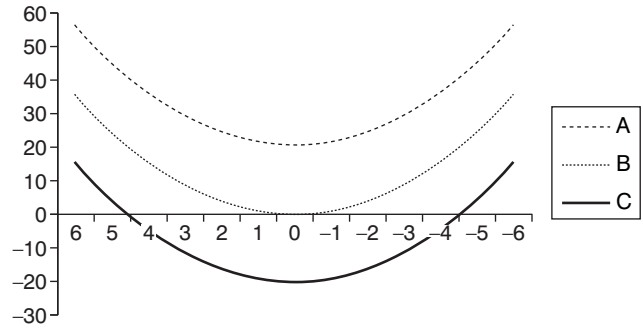

33. Which of A, B or C fits the formula $y = x^3$

Answer:

34. At which point does the line A cross the $x$ axis?

| A | B | C | D | E |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

Answer:




35. Which of A, B or C fits the formula $y = x^2 + 20$

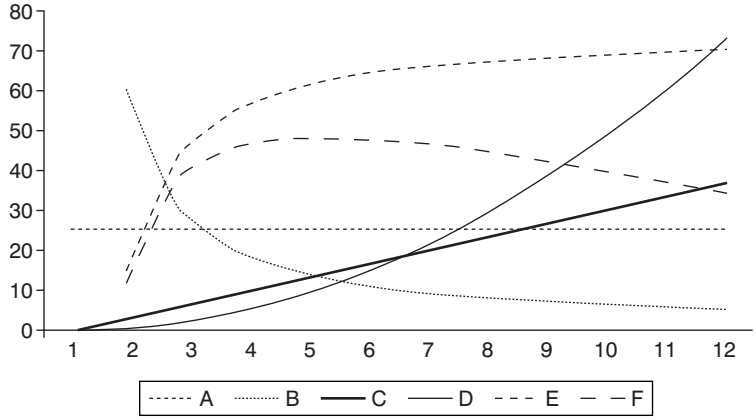
Answer:

36. At which approximate points does line C cross the *x* axis?

| A | B | C | D | E |
|---|---|---|---|---|
| 0 | 2 and 2 | 2 and –2 | 4.4 and 4.5 | 4.5 and –4.5 |

Answer:

From the graph below, match the lines to the equations.




37. $Y = 60/X$

Answer:

38. $Y = 3X$

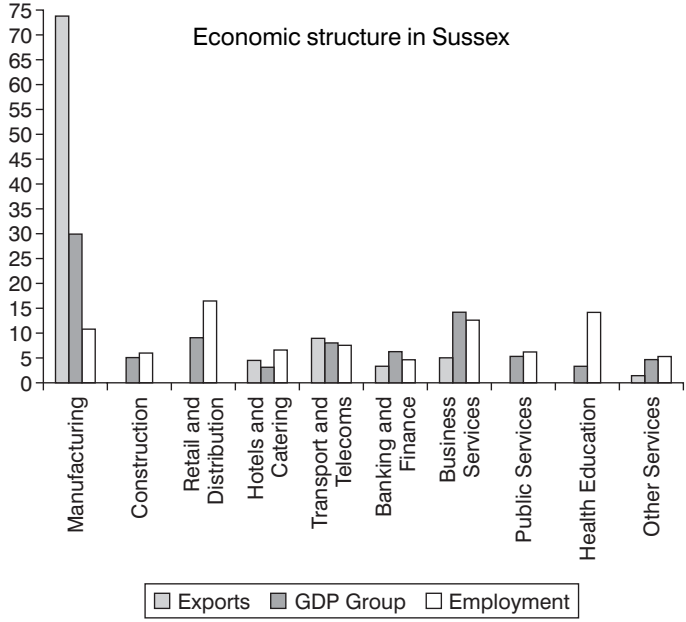
Answer:

39. $Y = 25$

Answer:

40. $Y = X^2/2$

Answer:




41. Exports from Sussex are dominated by manufacturing.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

42. Employment is concentrated in retail distribution, health and education and business services.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

43. The GDP of Sussex overall can be estimated at 20 times the GDP output of its construction sector.

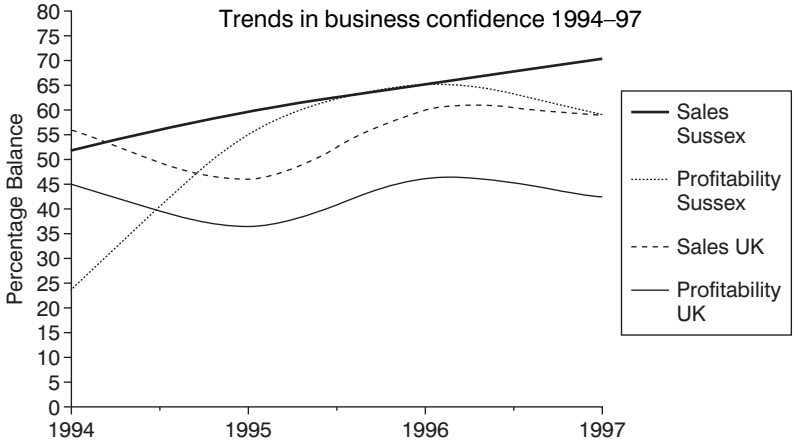
| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

44. Assuming all values are integers, there are five prime numbers in the GDP output of manufacturing.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:




Using the above graph, answer the following questions:

45. The graph demonstrates that the Sussex economy has grown faster than the UK economy overall.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

46. In 1997 the balance of businesses increased sales over previous years.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

47. In 1996 the balance of Sussex businesses reporting an increase in sales over those reporting decreasing sales was 65%.

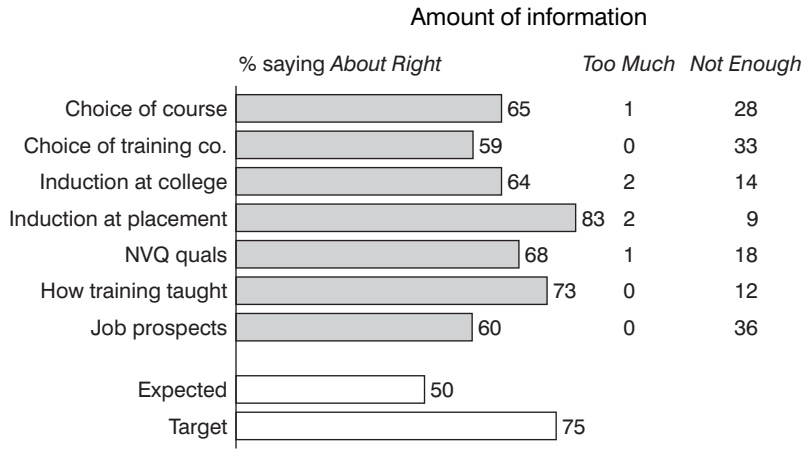
| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

48. Confidence in sales and profitability in Sussex during the period illustrated is more positive than in the UK as a whole.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐




A survey was conducted to deduce whether students felt they had received enough information regarding their training courses. From the results above answer the following questions:

49. The survey findings were overall short of the target of 75% of respondents saying about the right amount of information.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

50. From the information given you can deduce that a total of only six respondents reported instances when too much information was provided.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

| Vehicle | Speed |
|---|---|
| Bicycle | 20 miles/h |
| Car | 100 miles/h |
| Sports car | 150 miles/h |
| Scooter | 30 miles/h |

Above are the speeds of four different vehicles. Using this table answer the following questions:

51. How far has the car travelled after 20 minutes?

| A | B | C |
|---|---|---|
| 20 miles | 33.3 miles | 40 miles |

Answer: ☐

52. How long will it take the scooter to travel 40 miles?

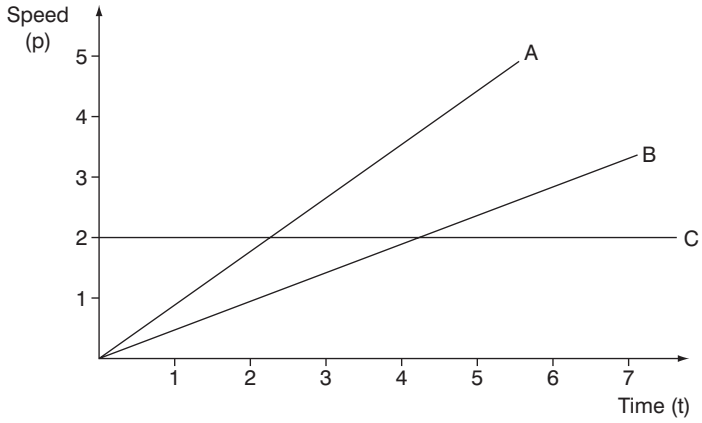
| A | B | C |
|---|---|---|
| 1h 5 min | 1h 20 min | 1h 15 min |

Answer: ☐

53. If the car and the sports car start at the same time, how much further has the sports car travelled after 30 min?

| A | B | C |
|---|---|---|
| 20 miles | 28 miles | 25 miles |

Answer: ☐




Above is a graph of three vehicles A, B and C, showing their speed *p* at time *t*. Using this graph, answer the following questions:

54. Which vehicle is moving fastest at time 4?

A B C

Answer:

55. Which vehicle is moving the fastest at time 1?

A B C

Answer:

56. Which vehicle has the slowest rate of acceleration?

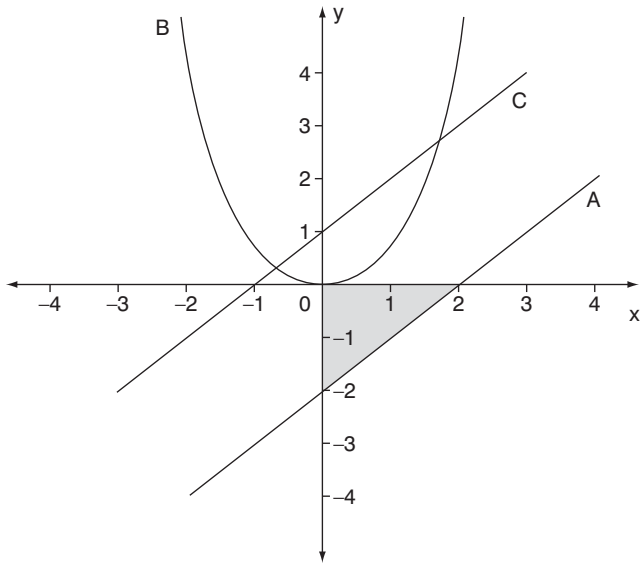
A B C

Answer:

57. At what time are vehicles B and C travelling at the same speed?

1 2 4

Answer:




Use the graph above to answer the following questions:

58. Which equation describes C best?

A
$Y = X - 2$

B
$Y = X + 1$

C
$Y = X^2$

Answer:

59. For function B, what is the value of $Y$ when $X = -1/4$?

| A | B | C |
|---|---|---|
| 0.0750 | 0.0625 | 1.250 |

Answer:

60. What is the area of the shadowed region in the graph?

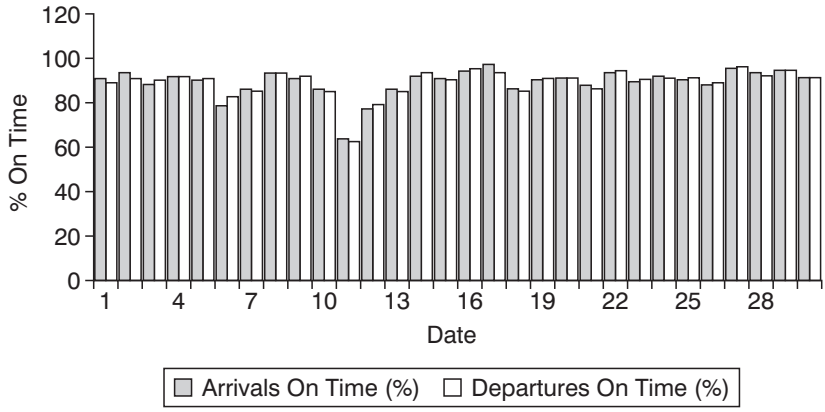
| A | B | C |
|---|---|---|
| 3 | 4 | 2 |

Answer:

61. Which equation describes B best?

| A | B | C |
|---|---|---|
| $Y = X + 4$ | $Y = 1 + X^2$ | $Y = X^2$ |

Answer:




The chart above illustrates the percentage of flights arriving and departing on time from an airport during September. Use this chart to answer the following questions:

62. Over the month the average number of flights arriving or departing on time is approximately:

| A | B | C | D | E |
|---|---|---|---|---|
| 80% | 85% | 90% | 95% | 100% |

Answer: ____

63. The percentage of flights arriving on time is approximately proportional to the percentage of flights departing on time:

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

64. On which date do the highest percentage of flights arrive on time?

| A | B | C | D | E |
|---|---|---|---|---|
| 15th | 16th | 17th | 18th | 19th |

Answer: ____

65. On which date do the highest percentage of flights depart on time?

| A | B | C | D | E |
|---|---|---|---|---|
| 23rd | 24th | 25th | 26th | 27th |

Answer: ____

66. Fog closes the airport for two hours one morning. Which date is this most likely to have happened on?

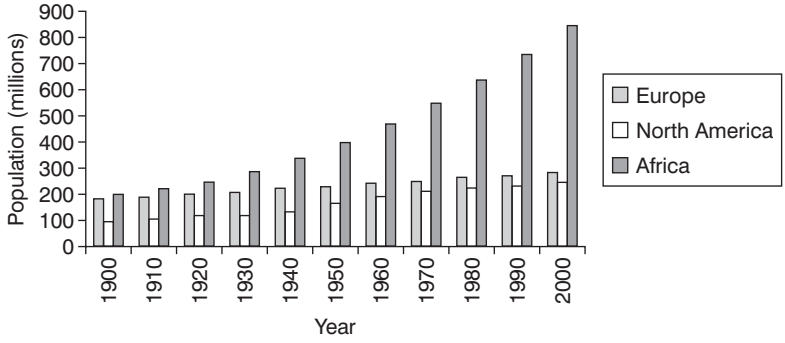
| A | B | C | D | E |
|---|---|---|---|---|
| 10th | 11th | 12th | 13th | 14th |

Answer: ____

67. Is the airport more efficient during:

A The first four days of the month?
B The last four days of the month?

Answer: ____




The chart above shows the populations of Europe, North America and Africa at 10-year intervals between 1900 and 2000. Use this chart to answer the following questions:

68. Which continent experiences:

    a. The highest percentage growth during the century?
    b. The lowest percentage growth during the century?

Answer:

69. How many decades does it take for the population of North America to double from 1900?

Answer:

70. How many decades does it take for the population of Africa to treble from 1900?

Answer:

71. During the 1960s does the rate of growth in the North American population increase or decrease?

Answer:

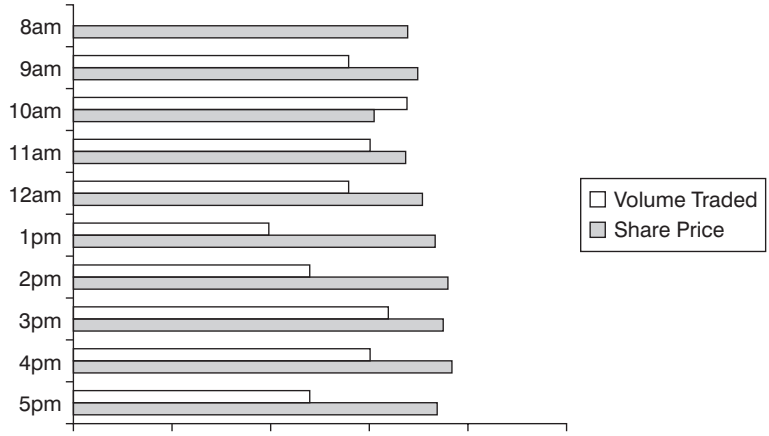
72. Which continent has the most consistent level of population throughout the century?

Answer:

73. Is the rate of growth of population in North America higher during:

A The first two decades of the century?
B The last two decades of the century?

Answer:




The above chart shows the price of a share and the number of shares traded in the previous hour. Use this graph to answer the questions below:

74. During which hour were:

a. the most shares traded?
b. the fewest shares traded?

Answer:

75. Overall, did the share lose or gain value during the day?

Answer: ☐

76. During which hour did the share lose the most value?

Answer: ☐

77. Which hour saw the greatest drop in the level of share trades?

Answer: ☐

78. Which saw the highest levels of trading – the first four hours of the day or the last four hours of the day?

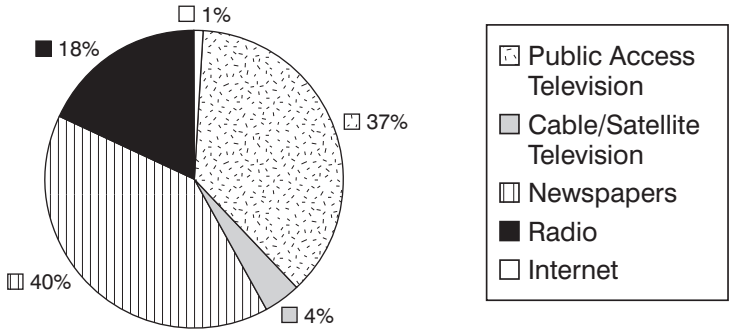
Answer: ☐

79. If a trader could only buy and sell once during the day, what would the best time have been to buy and sell?

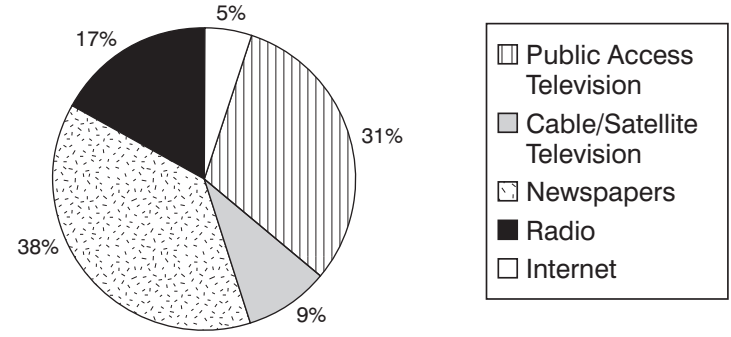
Answer: ☐

Figures (a) and (b) below show people's primary sources of news information in 1995 and 2000. Using these charts, answer the following questions:

a




b




80. Which source has gained the most market share?

Answer:

81. Which source has lost the most market share?

Answer:

82. Which source shows the greatest percentage increase in popularity between 1995 and 2000?

Answer: ____

83. Which source shows the smallest relative decrease in popularity during the period?

Answer: ____

84. What is the overall percentage decrease in terms of all television (Public Access and Cable)?

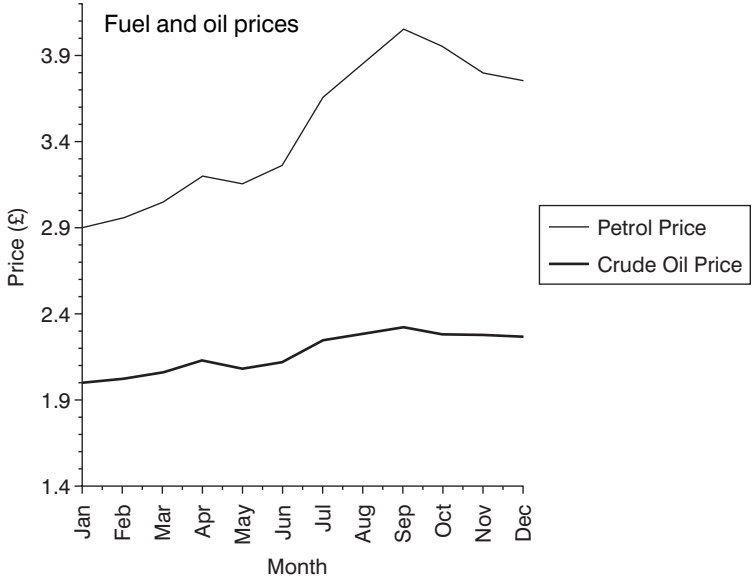
| A | B | C | D | E |
|---|---|---|---|---|
| 1.0% | 1.5% | 2.0% | 2.5% | 3.0% |

Answer: ____

85. If the market continues to change in this way, what would the Internet share of the market be likely to be in 2005?

| A | B | C | D | E |
|---|---|---|---|---|
| 10% | 15% | 20% | 25% | 30% |

Answer: ____




From the graph above, answer the following questions:

86. a. In what month were oil prices lowest?

| A | B | C | D | E |
|---|---|---|---|---|
| January | February | March | April | May |

Answer: ____

b. In what month were petrol prices highest?

| A | B | C | D | E |
|---|---|---|---|---|
| July | August | September | October | November |

Answer: ____

87. Which month saw the highest increase in crude oil prices?

| A | B | C | D | E |
|---|---|---|---|---|
| March | April | May | June | July |

Answer:

88. Which two consecutive months saw the highest increase in petrol prices?

| A | B | C | D | E |
|---|---|---|---|---|
| February & March | April & May | June & July | August & September | October & November |

Answer:

89. Which month sees the highest increase in petrol prices compared relative to oil prices?

| A | B | C | D | E |
|---|---|---|---|---|
| May | June | July | August | September |

Answer:

90. Estimate the highest price that crude oil prices reach during the year.

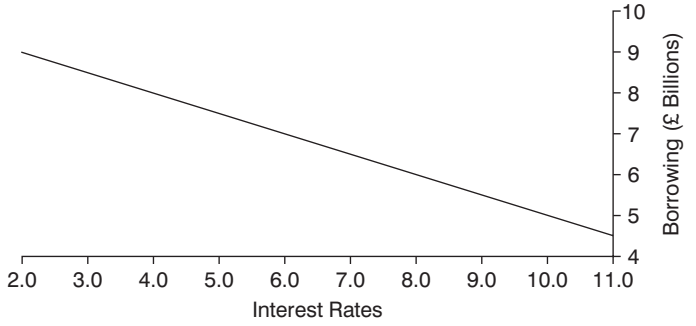
| A | B | C | D | E |
|---|---|---|---|---|
| 2.0 | 2.1 | 2.2 | 2.3 | 2.4 |

Answer:

91. What is the price of petrol in April?

| A | B | C | D | E |
|---|---|---|---|---|
| 3.0 | 3.1 | 3.2 | 3.3 | 3.4 |

Answer:




The above graph shows an example of the relationship between interest rates and monthly borrowing by the public. From this graph answer the following:

92. If interest rates are set at 6%, how much will people borrow in a month?

| A | B | C | D | E |
|---|---|---|---|---|
| £6 billion | £7 billion | £8 billion | £9 billion | £10 billion |

Answer: ☐

93. If the Bank of England cuts interest rates by 2 per cent, how much will monthly borrowing increase by?

| A | B | C | D | E |
|---|---|---|---|---|
| No change in rate | £1 billion | £2 billion | £3 billion | £225 million |

Answer: ☐

94. How much would the Bank of England need to increase interest rates by to reduce borrowing by £2 billion per month?

| A | B | C | D | E |
|---|---|---|---|---|
| 3% | 4% | 5% | 6% | 7% |

Answer: ☐

95. If interest rates average 7.5% during a year, how much borrowing will take place during the year?

| A | B | C | D | E |
|---|---|---|---|---|
| £55 billion | £65 billion | £75 billion | £85 billion | £95 billion |

Answer: ☐

96. If interest rates are 6.25% from 1 January to 31 March, 6.5% from 1 April to 30 September and 6.75% for the rest of the year, how much borrowing will take place during the year?

| A | B | C | D | E |
|---|---|---|---|---|
| £78 billion | £79 billion | £80 billion | £81 billion | £82 billion |

Answer: ☐

97. In this example borrowing is:

A directly proportional
B inversely proportional to interest rates?

Answer: ☐

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5

# Business judgement and data sufficiency

## Business judgement

Real business judgement-type tests seek to assess the core competencies required by commerce. They make use of the context of business and draw examples from it. The language used is drawn from the workplace. The questions should not require highly specialized knowledge but may examine the extent to which you can use the basic vocabulary and principal operations of business. These are the kind of thing that any interested person would acquire from reading, for example, the quality press. You do not need any particular work experience in order to answer the questions.

The questions in the first half of this chapter allow practice in business comprehension, basic finance and business judgement.

### Business comprehension

1. Which of the following is an example of stocks?

| A | B | C | D |
|---|---|---|---|
| Bonds | Options | Futures | Shares |

Answer:

2. Which of the following is an example of income?

| A | B | C | D |
|---|---|---|---|
| Expenditure | Credit | Debit | Revenue |

Answer: ☐

3. Which of the following is an example of bonds?

| A | B | C | D |
|---|---|---|---|
| Fixed-income securities | Equity | Mutual funds | Stocks |

Answer: ☐

4. Which of the following is an example of yield?

| A | B | C | D |
|---|---|---|---|
| Interest | Earnings | Capital | Investment |

Answer: ☐

5. Which of the following is an example of acquisition?

| A | B | C | D |
|---|---|---|---|
| Merger | Joint venture | Purchase | Redundancy |

Answer: ☐

6. Which of the following is an example of capital?

| A | B | C | D |
|---|---|---|---|
| Input | Output | Loan | Resources |

Answer: ☐

7. Which of the following is an example of equilibrium?

| A | B | C | D |
|---|---|---|---|
| Supply | Demand | Change | Balance |

Answer: ☐

8. Which of the following is an example of inflation?

A Decrease of demand
B Increase of demand
C Decrease in price levels
D Increase in price levels

Answer: ☐

9. Which of the following is an example of oligopoly?

A Many firms in the market
B One firm in the market
C A few firms in the market
D Many firms in the market but with differentiated products

Answer: ☐

10. Which of the following is an example of Human Resources?

| A | B | C | D |
|---|---|---|---|
| Staff | Employer | Clients | Student |

Answer: ☐

## Basic finance

| | Q1 (£'000) | Q2 (£'000) | Q3 (£'000) | Q4 (£'000) |
|---|---|---|---|---|
| Sales | 500 | 550 | 525 | 600 |
| Misc. income | 50 | 100 | 50 | 75 |
| Cost of goods sold | 100 | 100 | 75 | 125 |
| Gross profit | 450 | 550 | 500 | 550 |

11. Calculate the miscellaneous income for quarters 1 and 4.

| A | B | C | D |
|---|---|---|---|
| £100 | £75,000 | £175 | £125,000 |

Answer: ☐

12. What is the total sale figure for all 4 quarters?

| A | B | C | D |
|---|---|---|---|
| £2,175 | £2,250 | £2,175,000 | £2,250,000 |

Answer: ☐

13. How great is the miscellaneous income as a ratio of the total income for the whole year?

| A | B | C | D |
|---|---|---|---|
| 11% | 0.011 | 11 | 100% |

Answer: ☐

## Passage 1

Only market forces can solve the problem of high broadband prices in the UK, says Oftel director general David Edmonds. At £25 to £35 per month, UK prices are higher than the US, France, Germany and Sweden.

14. How much does a high broadband user have to pay per year in the UK?

| A | B | C | D |
|---|---|---|---|
| £25 to £35 | £300 to £420 | £275 to £400 | £250 to £350 |

Answer: ☐

15. If users in the USA were to pay £20 per month, what percentage of the cost to UK users would that represent?

| A | B | C | D |
|---|---|---|---|
| 60–80% | 10–15% | 2–5% | 120–140% |

Answer: ☐

## Passage 2

At present, BT's free voicemail service is growing at a rate of 20,000 users a day – with each user of the service able to store up to 20 minutes of incoming messages at any one time.

16. How many users does the BT service attract per year?

| A | B | C | D |
|---|---|---|---|
| 730,000 | 7,300 | 7,300,000 | 73,000 |

Answer: ☐

17. How many hours of incoming messages can the new users store at any one time?

| A | B | C | D |
|---|---|---|---|
| 6,666 h | 400,000 h | 40,000 h | 66,666 h |

Answer: ☐

## Passage 3

Bank of Granite's average loan margin – the difference between the interest it pays depositors and the interest it collects from borrowers – is 5%, a full percentage point over the industry mean.

18. What is the average loan margin of other banks?

| A | B | C | D |
|---|---|---|---|
| 1.5% | 0.5% | 4% | 0.4% |

Answer: ☐

## Passage 4

British Airways remains one of the world's most successful airlines. In 1996–97, it announced pre-tax profits up by 10% on the previous year to £650 million.

19. Calculate the pre-tax profit for 1995–96.

| A | B | C | D |
|---|---|---|---|
| £590 million | £670 million | £520 million | £500 million |

Answer: ☐

20. Given a tax rate of 25%, calculate the net profit for 1996–97.

| A | B | C | D |
|---|---|---|---|
| £812.5 million | £487.5 million | £715 million | £675.5 million |

Answer: ____

| | Tons produced/ year | Tons sold/ year | Tons exported/ year |
|---|---|---|---|
| Factory A | 5.5 | 4 | 0 |
| Factory B | 64 | 60 | 50 |
| Factory C | 40 | 40 | 40 |
| Factory D | 80 | 50 | 10 |

21. How many tons do the four factories not sell?

| A | B | C | D |
|---|---|---|---|
| 20 | 35.5 | 36.5 | 38.5 |

Answer: ____

22. Which factory has the highest export ratio?

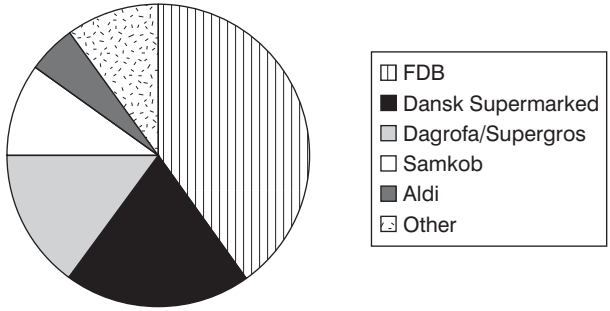
A, B, C or D?

Answer: ____

23. Which factory has the lowest sales ratio?

A, B, C or D?

Answer: ____




The above chart shows the breakdown of the main retail grocery stores in Denmark. Using this chart as a starting point, answer the following questions:

24. Which retail store has the largest share of the market?

Answer: ____

25. What two groups of retail stores have exactly the same presence on the Danish market?

Answer: ____

26. How large is the share of the second largest retail store?

| A | B | C | D |
|---|---|---|---|
| 10% | 1/5 | 0.75 | 30% |

Answer: ____

27. How large is the share of the three smallest groups together?

| A | B | C | D |
|---|---|---|---|
| 1/4 | 33% | 0.75 | 20% |

Answer: ____

28. There are 3,500 retail outlets in Denmark. How many of these are FDB outlets?

| A | B | C | D |
|---|---|---|---|
| 500 | 1,000 | 2,000 | 1,400 |

Answer: ____

29. How many retail stores do the three largest groups have together?

| A | B | C | D |
|---|---|---|---|
| 875 | 2,625 | 2,000 | 3,000 |

Answer: ____

## Business comprehension

Unisys wins $40m BT voicemail deal.

30. BT will pay Unisys $40m for its services.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

31. Unisys will make large profits by selling its services to BT.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Tyco shares closed down $8.35 at $33.65 – their lowest level for more than two years – despite assurances from the company that investors' fears were unfounded.

32. Shares haven't been this low for more than three years.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

33. The closing price that day was $8.35.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

34. The company told shareholders not to worry.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Haji-Ioannou, owner of easyJet, explained that its strategy is 'based on the belief that demand for short-haul air transport is price elastic'.

35. easyJet is a low-fares airline.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

36. Haji-Ioannou believes that the lower the price of a plane ticket, the higher is the demand.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

37. Haji-Ioannou believes that the higher the price of a plane ticket, the lower is the demand.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

The primary driver of the boom in commodity export markets has been the weak Australian dollar. It has fallen from US$0.80 over the past five years to around US$0.51 today.

38. Major parts of Australian exports are commodities.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

39. The US dollar has strengthened its value against the Australian dollar over the past five years.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

40. The US dollar is stronger against the Australian dollar today than it was three years ago.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Belgium is one of the world's leading exporters of beer. In 1994 it exported over 31 per cent of its production, almost all to other EU countries.

41. Belgium exported 69 per cent of its beer produced in 1994 to non-EU countries.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

42. Belgian beer is the most exported beer in the world.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

43. 31 per cent of Belgian exports go to other EU countries.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

44. Thirty-one per cent of Belgian production in 1994 was beer.

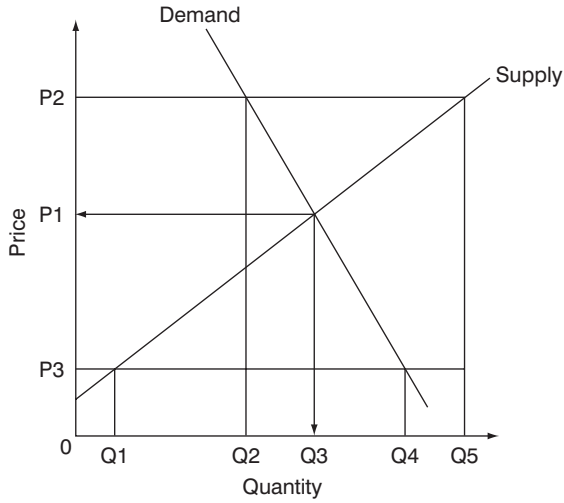
| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

## Business judgement

Suppose that as a part of the EU's Common Agriculture Policy it was decided that egg producers were guaranteed a minimum price for eggs and that any surplus of eggs would be bought up by the government at the agreed price.

Using the graph below, answer the following questions:




45. What would be the equilibrium price and quantity in the absence of any intervention?

Answer:

46. If the government were to guarantee a price of P2, how many eggs would the government have to buy up?

| A | B | C | D | E |
|---|---|---|---|---|
| Q1 demand | Q2 supply | Q3 supply | Q4–Q2 | Q5–Q2 |

Answer: ☐

47. What would be the quantity of eggs demanded by households at this price?

| A | B | C | D | E |
|---|---|---|---|---|
| Q1 | Q2 | A3 | Q4 | Q5 |

Answer: ☐

48. What would be the market price if the government were to agree a minimum price of P3?

| A | B | C |
|---|---|---|
| P1 | P2 | P3 |

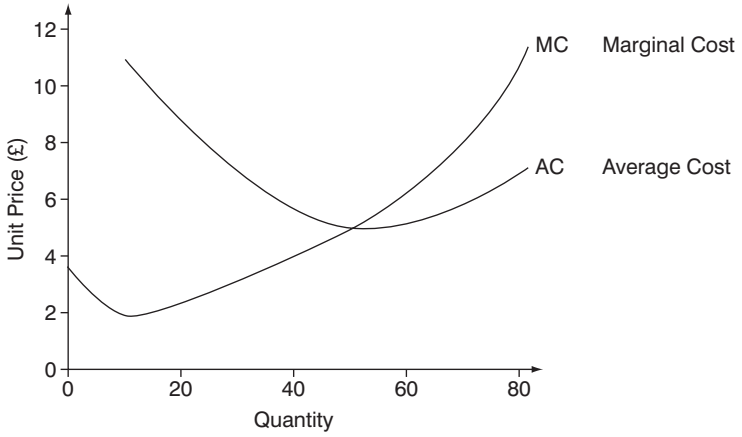
Answer: ☐

49. What would be the demand from households at this price?

| A | B | C | D | E |
|---|---|---|---|---|
| Q1 | Q2 | Q3 | Q4 | Q5 |

Answer: ☐

The following diagram shows the cost curves of a firm under perfect competition. Use it to answer the questions below it.




50. How much will the firm produce in order to maximize profits at a price of £8/unit?

| A | B | C | D |
|---|---|---|---|
| 50 units | 60 units | 70 units | 80 units |

Answer: ☐

51. What will the firm's average cost of production be at this output?

| A | B | C |
|---|---|---|
| £6 per unit | £8 per unit | £10 per unit |

Answer: ☐

52. How much profit will the firm make at this cost and output?

| A | B | C |
|---|---|---|
| £70 | £140 | £2 |

Answer:

53. At the price of £4/unit, how many units will be produced, and will any profit be generated?

| A | B | C | D |
|---|---|---|---|
| 40 units with profit | 40 units, no profit | 20 units with profit | 20 units, no profit |

Answer:

## Data sufficiency

Tests of data sufficiency seek to measure a candidate's ability to evaluate information and identify logical connections. These types of question do not require you to provide the answer but to establish if the statement is true or false, or indicate whether or not the question can be answered, or identify from a list of options which further information you require in order to answer the question. The subject matter can be drawn from almost any subject.

Take care to rely only on the information given in order to answer the questions. Be especially careful if the questions relate to a subject on which you know a great deal, as you must resist the temptation to bring your own knowledge to the problem.

The following questions seek to provide practice ranging from easy to difficult in the main styles of this type of test.

Tim Chou, president of oracle.com, believes the company could take between 10 and 20 per cent of its European business online within the next 12 months, despite a slow start in Europe.

54. Oracle has been very successful in Europe.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

55. 10–20 per cent of Oracle's business has been online for the past 12 months.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

One-bedroom flats were the most popular new homes in London last year, both for living and as investments. The good news is that more of these flats are being built; the bad news is that they are getting smaller and more expensive.

56. It has become popular to buy flats as investments in London.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

57. One-bedroom flats are becoming more expensive.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

58. Buyers who look to invest often rent out their flats.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

The number of IT jobs in the UK has more than doubled in the last five years. But while women represent over half of the potential workforce in the UK, they form only 22 per cent of the IT workforce, compared with 29 per cent as recently as 1994, according to government figures.

59. More than 50 per cent of the potential workforce in the UK are women.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

60. The IT workforce is dominated by women.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

61. Seven per cent of women working in IT have moved to work elsewhere.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

62. There are fewer women working in IT today than in 1997.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Seen over a longer period, however, Sweden's readiness to let people in has indeed lessened. Its generous laws resulted in about 80 per cent of claimants being allowed to stay during the 1970s and 1980s. From 1990 that figure dropped to 40 per cent, after the stricter asylum criteria that apply today were adopted. The tougher rules have not deterred new applicants: asylum claims rose by 45 per cent last year to 16,000. Swedish officials say that organized asylum traffic and human smuggling by racketeers has bumped up the figures.

63. Sweden has always had a very harsh asylum policy.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

64. Only 20% of claiming asylum seekers were turned away during the 1970s and 1980s.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

65. There are fewer asylum seekers this year than there were last year.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

66. Last year the number of asylum seekers rose by almost a half.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

67. Organized asylum traffic and human smuggling is on the increase.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

68. There were approximately 8,000 asylum claims made two years ago.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Britain's countryside has not yet returned to normal. More than 80 per cent of the country's footpaths remain closed. But at least farmers are beginning to see the end of their nightmare. The cost of the outbreak has been high. Last week, the Centre for Economic and Business Research estimated that the epidemic

would cost farmers £3.6 billion ($5.2 billion). The government estimates that tourism is still losing £125m a week, and the British Tourist Authority (BTA) says that on current trends Britain could lose up to £2.5 billion over the year in revenue from overseas tourists.

69. More than 80% of Britain's farms remain closed.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

70. British farmers have lost just over $3.6 billion because of foot-and-mouth disease.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

71. The BTA believes that the number of tourists from abroad will decrease.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

72. Britain is losing out on overseas tourists because of the epidemic.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

73. The Centre for Economic and Business Research estimates that the tourism industry is still losing £125m a week.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

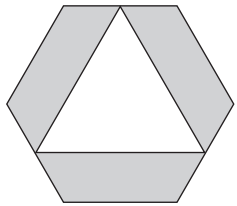
Answer: ☐

74. A 6 lb baby whose weight doubles every day will weigh more than eighteen 40-stone elephants in under two weeks. (NB 1 stone = 14 lb)

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

75. The white triangle has three-fifths the area of the shaded section.



| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

76. In a triathlon, an athlete swims for 20 minutes at 10 mph, cycles for 30 minutes at 20 mph and runs for 10 minutes at 10 mph. The total distance covered is 12 miles.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

77. A yacht sails for one hour at an average speed of 10 mph. If the yacht makes one tack of 90 degrees, the straight-line distance between the starting and finishing points is 7.07 N miles.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

78. If a heart beats once a second, it beats 30,536 times in a year.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

79. A car with a full 50-litre tank of petrol sets off on a journey of 740 miles. After travelling for four hours at 68 mph the driver slows down to conserve fuel – but will still run out of petrol more than 100 miles before reaching his destination.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

80. Typing at 25 words per minute, I can write up a 6,000-word report in less than an hour.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

81. A £15 bet placed at odds of 25:3 will yield a total of £125 if successful.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

82. The sum of the internal angles of an isosceles triangle will be exactly half of the sum of the internal angles of a square.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

83. A gym subscription is either £500 per year, or £50 per month over twelve months. It would be cheaper to borrow £500 from a bank for 12 months at an APR of 20% and pay the gym in full rather than to pay monthly.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

84. A car constantly accelerating at 60 miles per hour from standstill will have travelled 60 miles in one hour.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

85. A car constantly accelerating at 60 miles per hour from standstill will have travelled 120 miles in two hours.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

86. If inflation is running at 10%, a savings account yielding 9% will lose value whilst money borrowed at a percentage rate of 9% will gain value.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

87. A business with costs of £80,000 per month, which makes 16% net profit on the products it markets, will need to generate sales of £500,000 per month to break even.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

88. 25 people put a total of £75,000 into a savings fund with a variable interest rate fixed at 2.5% above the Bank of England base rate which is 3.5% when the fund is set up. When the fund is closed five years later, each of the investors will receive over £4,000.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

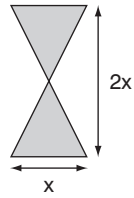
Answer: ____

89. The area of an equilateral triangle with sides of 50 cm is half of the area of a square with sides of 50 cm.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

90. The combined area of the shaded triangles is $x^2$.




| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

91. In statistics, an example of discrete variable data would be the number of fish caught by a heron from a garden pond each year.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

92. An example of continuous variable data is the volume of water held in the garden pond measured each day over a hot summer.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

93. The symbol $\Sigma x$ represents the mean of $x$.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

94. $\overline{X}$ = The sample mean of $X$.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

95. Which of the following is the definition of average (a bit of a trick question?)

    A The sample arithmetic mean
    B The middle value with the sample ranked in increasing magnitude
    C The value with the highest frequency
    D None of these

    Answer: ____

96. Only proportional increases and not decreases are achieved using a multiplier.

    | A | B | C |
    |---|---|---|
    | True | False | Cannot tell |

    Answer: ____

97. Quota sampling is used to draw representative conclusions that can be applied to the entire population.

    | A | B | C |
    |---|---|---|
    | True | False | Cannot tell |

    Answer: ____

98. To change a percentage into a decimal, move the decimal point two places to the left. To change a percentage to a fraction, divide by 100.

    | A | B | C |
    |---|---|---|
    | True | False | Cannot tell |

    Answer: ____

99. Events are mutually exclusive if the outcomes have no effect on each other. Independent events cannot happen at the same time.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

100. If a number can be divided into another it is a factor of that number. All numbers have factors.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

101. Multiplication and division are inverse operations. To multiply two fractions you can multiply the numerators and the denominators. By dividing the numerator by the denominator you can change a fraction into its decimal equivalent.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

102. In a bar chart the frequency of the data is shown by the area. In a histogram the frequency of the data is shown by the height. In a bar chart the frequency scale shows the actual frequency.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

103. The inter-quartile range is the difference between the lower quartile and upper quartile values. The upper quartile is two-thirds of the way through the data. The median is found halfway through the data.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

104. Cumulative frequency gives the running total. Correlation is a measurement of the strength of a relationship. The relative size of two or more quantities can be compared with a ratio.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

105. If data is symmetrical then the mean and median are equal. When a positive skew occurs the mean is less than the median. When a negative skew occurs the mean is more than the median.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

106. Probability measures uncertainty. Probability is measured on a scale of 0–1. Probability and possibility are interchangeable terms.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Read the passage and use the information to answer the questions.

## Passage 1

After expanding by 4 per cent last year, the world economy is expected to grow by just 1.5 per cent during 2001 and by about the same rate in 2002. This would meet the definition of global recession – annual growth of less than 2 per cent. It would be the first time since 1990/91 that the world economy has grown by less than 2 per cent for two consecutive years.

107. The three largest economies of the world, the US, Japan and Germany, are either in recession or on the brink of it.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

108. The world economy is in recession.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

109. Global economic growth is on course to be its weakest for 10 years.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Read the passage and use the information to answer the questions.

## Passage 2

Recent data shows that the UK economy has slowed compared with a year ago. Annual growth averaged 2.3 per cent in the first three quarters of 2001 against 2.9 per cent in those quarters during 2000. This rate places the UK with the fastest growth rate of the G7 economies (the world's seven largest economies). This means that for the first time since the 1950s the UK has outperformed the other major economies during a recession. The Bank of England puts the chance of recession in 2002 at 1 in 10.

110. In the past the UK has experienced a more severe recession than the other major world economies.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

111. The Bank of England expects growth in the UK during 2002 at 2% or over.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

112. There is some evidence in the passage that supports the suggestion that the current global slowdown is having a negative impact on the UK economy.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

113. In contrast to the past 40 years, during a world recession the UK economy has continued to grow, although more slowly.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Read the passage and answer the questions that follow.

## Passage 3

Global low inflation and weak growth or recession are likely to lead to further cuts in interest rates. The projected economic cycles suggest that the US will make a quicker recovery than Europe and that therefore the dollar will remain firm against the euro.

Continued debt and deflation in Japan is expected to keep the yen weak.

114. The euro is undervalued against the dollar.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

115. The interest rate-cutting cycle is not yet over.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

116. A reversal of recent monetary policy easing is forecast.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer:

Read the following passage and identify which of the statements are required in order to answer the questions that follow.

## Passage 4

An employer pays all of his staff in terms of basic salary and bonus. In a very good month the bonus is greater than the basic salary for most of his staff. In a bad month the bonus can be zero.

- Sales staff receive the highest bonus payments but the lowest basic salaries.
- Production staff receive moderate bonus payments and moderate salaries.
- Administration staff receive the lowest bonus payments but the highest salaries.

Given the above information, which of the following statements are required to answer the questions below?

A Sales staff are the highest paid of all staff when sales exceed £1m per month.
B Administration staff earn twice as much basic salary as sales staff.
C Production staff earn more than administration staff when sales exceed £1m per month.

117. Administration staff stand to gain the least regardless of whether it is a good or bad month.

A Statement A
B Statement B
C Statement C
D Statements A and B
E Statements B and C
F Statements A and C
G Statements A B and C
H None of the above

Answer:

118. Administration staff earn less than all other staff if sales exceed £1m.

A Statement A
B Statement B
C Statement C
D Statements A and B
E Statements B and C
F Statements A and C
G Statements A B and C
H None of the above

Answer:

119. If sales exceed £1m in a month sales staff will receive a bonus which is greater than the basic salary of administration staff.

A Statement A
B Statement B
C Statement C
D Statements A and B
E Statements B and C
F Statements A and C
G Statements A B and C
H None of the above

Answer:

## Passage 5

Fourteen people get on a bus at the start of its journey. There are three stops, including the final destination. In total the bus driver collects more than £4 and less than £6 in fares. All of the passengers have paid the correct fare for their intended journey. No one else gets on the bus before it reaches the final stop.

A The cost of going to the first stop is 25p
B The cost of going to the second stop is 45p
C The cost of going to the last stop is 85p
D None of the above

Which of the above statements are required in order to prove the following:

120. At least one passenger plans to leave the bus at the first stop.

Answer:

121. Not all of the passengers plan to leave the bus at the first stop.

Answer:

122. If there are eight passengers on the bus after the first stop, no more than six passengers can leave the bus at the second stop.

Answer: ☐

123. After the second stop at least 4 out of 11 passengers realize that they have missed their stops.

Answer: ☐

124. Read the passage and question below and decide if you need either both or neither statement in order to answer the question.

A family consisting of two adults and three children has booked a charter to Cyprus. The children are 1, 7 and 10 years old. With children's discount, the whole trip costs £1,800. How much does the trip cost for the children?

1. The family pays £120 for the one-year-old.
2. The 7- and the 10-year-old each pay 40% of the price of an adult.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

125. Read the question and decide if you need either both or neither statement in order to answer the question.

Jane has one red and one blue ball. What is the volume of the blue ball?

1. The volume of the red ball, which is smaller than the blue one, is 0.75 $cm^3$. The balls are in the volume ratio of 2 to 3.
2. The radius of the blue ball is 50% longer than the radius of the red ball.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

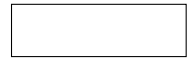
126. Read the question and decide if you need either both or neither statement in order to answer the question.

John writes down a number of whole numbers between 10 and 25. The number's mean value is 18. How many whole numbers has John written down?

1. The mean of the three first numbers that John writes down is 22.
2. The mean of the two last numbers that John writes down is 12.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: 

127. Read the question and decide if you need either both or neither statement in order to answer the question.

Sarah is taller than Mary. Anna is taller than Jenny. Who is the shortest?

1. Sarah is taller than Jenny.
2. Anna is shorter than Mary.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

128. Read the question and decide if you need either both or neither statement in order to answer the question.

Three hens lay $x$, $y$ and $z$ eggs respectively. How many eggs did they lay altogether?

1. $5y + x = 5z$
2. $z = 7$

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

129. Read the question and decide if you need either both or neither statement in order to answer the question.

James, Barbara and Charles are together 90 years old. Charles is the same age as James and Barbara together. How old is Barbara?

1. James and Charles are together twice as old as Barbara.
2. In 15 years James will be half the age of Charles.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

130. Read the question and decide if you need either both or neither statement in order to answer the question.

Sarah walked home from the railway station. It took her longer to walk the first half of the distance than it took for her to walk the second half of the distance. How long did it take Sarah to walk the whole distance?

1. It took Sarah 30 minutes to walk the first half of the distance.
2. Sarah walked the second half at an average speed of 1 km/h faster than she had walked the first half.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

131. Read the question and decide if you need either both or neither statement in order to answer the question.

On a farm, there are 40 rabbits out of which 10 are white, 12 are black and 18 are speckled; 60% of the rabbits are female. How many of the black rabbits are female?

1. 10 of the black and the white rabbits are female.
2. 14 of the speckled rabbits are female.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ____

132. Read the question and decide if you need either both or neither statement in order to answer the question.

In a bowl there are marbles that are either blue, red or green; 75 marbles are red. How many marbles are there in the bowl?

1. 50% of the marbles in the bowl are either red or blue.
2. 175 of the marbles in the bowl are either red or green.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ____

133. Read the question and decide if you need either both or neither statement in order to answer the question.

Tessa and Catherine weighed themselves at two different occasions. On the first occasion, they weighed 60 kilos respectively. How much did they weigh together on the second occasion?

1. On the second occasion Tessa had gained in weight what Catherine had lost in weight in relation to what they weighed on the first occasion.
2. On the second occasion Tessa had gained in absolute weight what Catherine had lost in weight.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

134. Read the question and decide if you need either both or neither statement in order to answer the question.

X and Y are two positive whole numbers. What is the number X?

1. 75% of X is more than 50% of 20% of Y.
2. 150% of X is 75% of 60% of Y.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer:

135. Read the question and decide if you need either both or neither statement in order to answer the question.

There are four bottles of two sizes and different colours on a shelf. One of the bottles, a red one, has been two-thirds filled with water. How many centilitres of water does it contain?

1. When the red bottle is completely filled it contains 50% more than when it is two-thirds filled.
2. The bottles hold either 0.5 or 1.0 litre. When the four bottles are completely filled they altogether hold 3 litres.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

136. Read the question and decide if you need either both or neither statement in order to answer the question.

A company rented an aeroplane to transport its employees to a conference. The company had to pay £20,000 to rent the aeroplane independently of how many of the employees actually travelled to the conference. How many employees travelled on the aeroplane to attend the conference?

1. If another 70 employees had travelled on the aeroplane to attend the conference the cost per employee would go down by £18.
2. When the plane flew to the conference 28% of the seats were empty.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: [ ]

137. Read the question and decide if you need either both or neither statement in order to answer the question.

There are 20 equally sized pieces of paper each marked with the numbers 1, 2 or 3 in a box. How many of the pieces of paper are marked with the number 3?

1. The probability of a piece of paper being marked with the number 3 or 1 is 0.6 if taken randomly from the box.
2. There are 12 pieces of paper marked with either 1 or 2.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

138. Read the question and decide if you need either both or neither statement in order to answer the question.

Index is used to show change over time. The index number for the number of shoes manufactured between 1994 (index = 100) and 1998 rose by 20 units. How many pairs of shoes were manufactured in 1998?

1. There were 224,000 pairs of shoes manufactured in 1996, which was 16,000 pairs less than in 1998.
2. There were 40,000 more pairs of shoes manufactured in 1998 than in 1994.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

139. Read the question and decide if you need either both or neither statement in order to answer the question.

There is one red, one blue, one yellow and one green flowerpot on a table. The heaviest of the pots weighs 4 kilos. Which colour is the heaviest flowerpot?

1. The blue and the green flowerpots together weigh 2 kilos more than the yellow one.
2. The green and the yellow flowerpots together weigh 2 kilos more than the red one.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

140. Read the question and decide if you need either both or neither statement in order to answer the question.

Out of the starters in a race only a certain number of runners finished, as some abandoned the race. How many of the starters finished the race?

1. If one-third of the runners who finished had instead abandoned and if half of the runners who abandoned the race instead had finished, the number of starting runners who finished the race would have been unchanged.
2. If 30 more runners had finished the race and consequently 30 fewer had abandoned the race, the number of starting runners who finished would increase by 50%.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

141. Read the question and decide if you need either both or neither statement in order to answer the question.

Eric picked some apples. Of these, he gave one-third to John, Peter and Andrew. Andrew was given one of the apples. How many apples did Eric pick in total?

1. John gets the most apples, namely half of the apples that Eric gives away plus half an apple.
2. At the point when only John has received his apples, Peter receives half of the apples that remain of the apples that Eric gives away plus half an apple.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

142. Read the question and decide if you need either both or neither statement in order to answer the question.

A, B, C and D each cut a slice of cake. A took one-third of the cake. How big a part of the cake was left once everyone had taken one slice each?

1. Half of the cake was left when A and B had taken a slice each.
2. B, C and D all had one slice each. Each of these slices was half of the size of A's slice of cake.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

143. Read the question and decide if you need either both or neither statement in order to answer the question.

In total, there were 792 men and women participating in a conference. What share of the participants were women?

1. There were 396 fewer men than women participating in the conference.
2. There were three times as many women as men participating in the conference.

There is sufficient information in order to solve the question:

A in (1) but not in (2)
B in (2) but not in (1)
C in (1) and (2) together
D in (1) and (2) separately
E in none of the statements

Answer: ☐

6

# Mock tests

This chapter comprises four mock tests. The first two require a medium level of numerical skills and familiarity with the vocabulary of business. The second two tests require a medium to high level of competency.

You must decide whether or not this level is suitable for the challenge you face. Do not allow yourself to be discouraged if you find these tests too difficult. It may be that you do not face a test at this level; alternatively, undertake more practice.

## Mock test 1

### Data interpretation

This mock test comprises 30 multiple choice questions. They require you to interpret information from tables and graphs and use the information to answer the questions.

Allow yourself 20 minutes to complete the test.

Do not turn over the page until you are ready.

Answers and explanations are provided in Part 3.

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**Table 6.1** The market demand and supply of potatoes

| Price of potatoes (pence per kg) | Total market demand (tonnes) | Total market supply (tonnes) |
|---|---|---|
| 4 | 700 | 100 |
| 8 | 500 | 200 |
| 12 | 350 | 350 |
| 16 | 200 | 530 |
| 20 | 100 | 700 |

1. How many potatoes will be demanded if the price per kg were 16p?

| A | B | C | D |
|---|---|---|---|
| 200 | 350 | 500 | 100 |

Answer: ☐

2. If the price per kg of potatoes were 4p, how many tonnes would be supplied by the market?

| A | B | C | D |
|---|---|---|---|
| 700 | 350 | 100 | 200 |

Answer: ☐

3. If the price of potatoes were to rise from 8p to 12p per kg, what effect would this have on the demand?

| A | B | C | D |
|---|---|---|---|
| Increase by 350 tonnes | Decrease by 350 tonnes | Increase by 150 tonnes | Decrease by 150 tonnes |

Answer: ☐

4. What is the equilibrium price in this market?

| A | B | C | D |
|---|---|---|---|
| 4p | 8p | 12p | 16p |

Answer: ☐

5. If the price of potatoes were set at 8p per kg by the government, what would be the effect on the market?

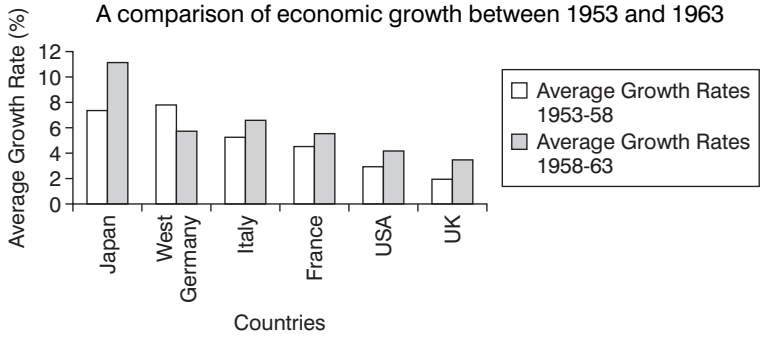
A Shortage of 300 tonnes
B Surplus of 300 tonnes
C Shortage of 500 tonnes
D Surplus of 200 tonnes

Answer: ☐

6. How much more surplus would be created if the price rose from 16p to 20p per kg of potatoes?

| A | B | C | D |
|---|---|---|---|
| 700 tonnes | 530 tonnes | 350 tonnes | 270 tonnes |

Answer: ☐




7. What is the average growth rate for the UK between 1953 and 1958?

| A | B | C | D |
|---|---|---|---|
| 1% | 2% | 3% | 4% |

Answer:

8. Which country had the highest average growth rate between 1958 and 1963?

| A | B | C | D |
|---|---|---|---|
| Japan | West Germany | Italy | France |

Answer:

9. In which country is the average growth rate for 1953–58 greater than the one for 1958–63?

| A | B | C | D |
|---|---|---|---|
| UK | USA | France | West Germany |

Answer:

10. Which country experiences the largest rise in average growth rate?

| A | B | C | D |
|---|---|---|---|
| France | Italy | West Germany | Japan |

Answer: ☐

**Table 6.2** Sales of 'Outrage' outerwear for the years 1992–94 (given quarterly)

| Year | Quarter | Sales revenue (£) |
|---|---|---|
| 1992 | 1 | 256 |
| | 2 | 220 |
| | 3 | 130 |
| | 4 | 283 |
| 1993 | 1 | 260 |
| | 2 | 225 |
| | 3 | 137 |
| | 4 | 288 |
| 1994 | 1 | 264 |
| | 2 | 227 |
| | 3 | 141 |
| | 4 | 290 |

11. Which quarter is constantly more profitable for the company?

| A | B | C | D |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

Answer: ☐

12. In which quarter of 1993 is the sales revenue the lowest?

| A | B | C | D |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

Answer: ☐

13. Calculate the mean for the sales revenue during 1994.

| A | B | C | D |
|---|---|---|---|
| 230.5 | 227.5 | 222.5 | 212.5 |

Answer: ☐

14. In which year does the company experience the largest range of sales revenue?

| A | B | C |
|---|---|---|
| 1992 | 1993 | 1994 |

Answer: ☐

15. What is the median of sales revenue in 1992?

| A | B | C | D |
|---|---|---|---|
| 238 | 240 | 242 | 244 |

Answer: ☐

**Table 6.3** Rainfall, sunshine, and wind speed for Italy throughout 1998

| | **Rainfall (in mm)** | **Sunshine (in hours)** | **Wind speed (in knots)** |
|---|---|---|---|
| January | 113 | 56 | 18 |
| February | 140 | 86 | 14 |
| March | 160 | 130 | 25 |
| April | 91 | 140 | 28 |
| May | 78 | 155 | 12 |
| June | 63 | 158 | 14 |
| July | 70 | 230 | 7 |
| August | 75 | 210 | 16 |
| September | 101 | 195 | 18 |
| October | 104 | 145 | 20 |
| November | 140 | 93 | 16 |
| December | 137 | 75 | 14 |

16. What is the arithmetic mean of the rainfall in 1998?

| A | B | C | D |
|---|---|---|---|
| 100 mm | 106 mm | 112 mm | 118 mm |

Answer: ☐

17. Which month had approximately six days' worth of sunshine?

| A | B | C | D |
|---|---|---|---|
| September | October | November | December |

Answer: ☐

18. By what percentage did the wind speed decrease between October and November?

| A | B | C | D |
|---|---|---|---|
| 10% | 20% | 30% | 40% |

Answer: ☐

19. Which month's sunshine is over four times less than July's?

| A | B | C | D |
|---|---|---|---|
| January | February | March | April |

Answer: ☐

20. How many months experienced over 12,500 minutes of sunshine?

| A | B | C | D |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

Answer: ☐

**Table 6.4** Private higher education institutions in Central and Eastern Europe

| | Number of institutions | Number of students | Typical annual fees (in $) |
|---|---|---|---|
| Armenia | 69 | 20000 | 300 |
| Azerbaijan | 17 | 3800 | 500–1500 |
| Bulgaria | 9 | 27900 | 375–570 |
| Czech Rep | 8 | 2900 | 1210–1340 |
| Estonia | 24 | 13300 | 1640 |
| Hungary | 32 | 28000 | 800–4800 |
| Latvia | 13 | 14600 | 1050 |
| Lithuania | 7 | 1300 | 2500 |
| Moldova | 39 | 3900 | 155–620 |
| Poland | 195 | 37770 | 440–910 |
| Romania | 54 | 130100 | 210 |
| Slovakia | 2 | 2000 | 800–1200 |
| Slovenia | 11 | 2900 | 2340–7020 |

21. What is the average number of students attending a single institution in Moldova?

| A | B | C | D |
|---|---|---|---|
| 0.01 | 10 | 100 | 1000 |

Answer: ☐

22. If the Lithuanian government considers the 'ideal' institution to have just 100 students, how many new institutions should be opened up according to them?

| A | B | C | D |
|---|---|---|---|
| 0 | 2 | 4 | 6 |

Answer: ☐

23. What country has the biggest range of annual fees?

| A | B | C | D |
|---|---|---|---|
| Bulgaria | Czech Republic | Hungary | Slovenia |

Answer:

24. Given that the institutions give their entire income to the government, which government is receiving the most?

| A | B | C | D |
|---|---|---|---|
| Armenian | Estonian | Lithuanian | Romanian |

Answer:

25. What is the minimum that each institution in Hungary receives from its students?

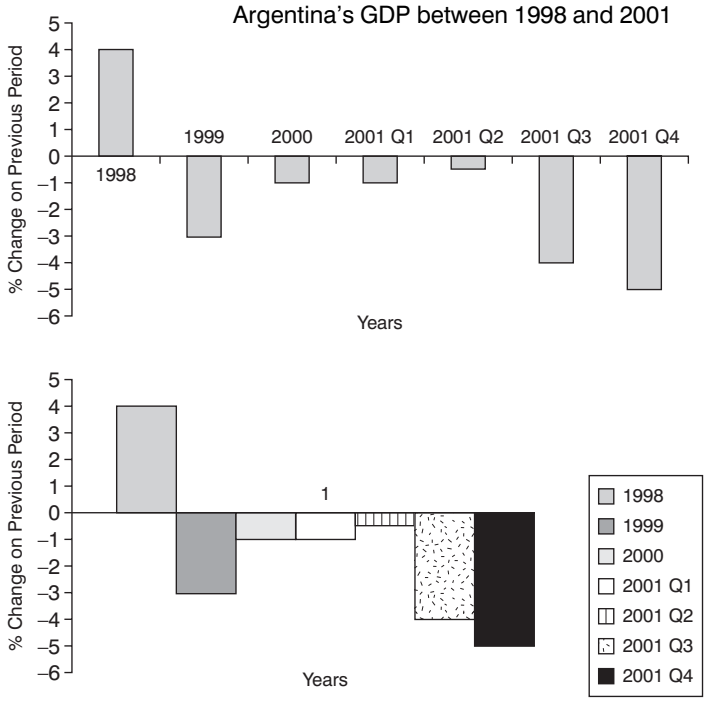
| A | B | C | D |
|---|---|---|---|
| 700,000 | 2,450,000 | 4,200,000 | 78,400,000 |

Answer:

26. The Latvian government imposes a 6% rise on all annual tuition fees. How much will the institutions be gaining or losing in total, if this increase causes the number of students to drop by 2%?

A gaining 594,804
B losing 594,804
C gaining 919,800
D losing 919,800

Answer:




27. What happened to Argentina's GDP between 1997 and 1998?

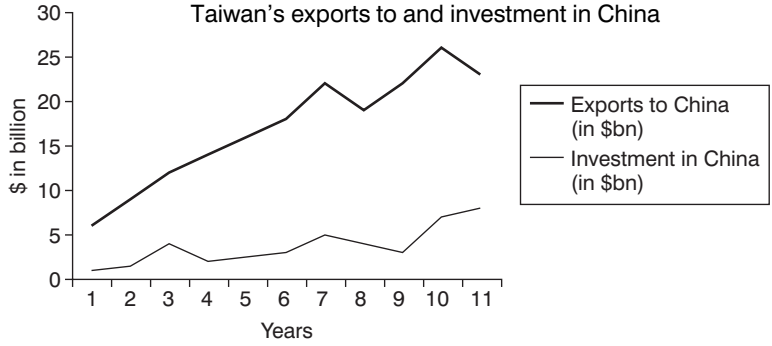
A Increased 4%
B Decreased 4%
C Remained stable
D Cannot tell

Answer:

28. Given that Argentina's GDP was $500 million in 1998, what was it in 1999?

| A | B | C | D |
|---|---|---|---|
| $480m | $485m | $515m | $520m |

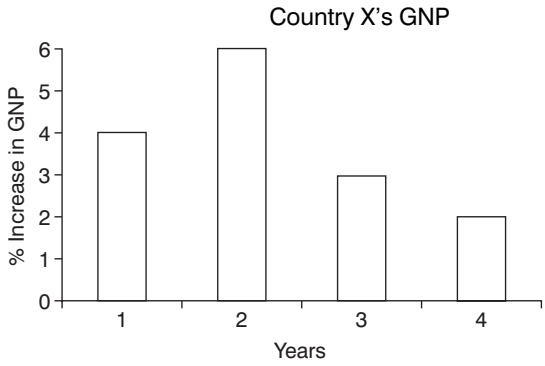
Answer:




29. Which is the only year in which Taiwan experienced a peak both in its exports to China and in its investments in China?

| A | B | C | D |
|---|---|---|---|
| 3 | 7 | 9 | 11 |

Answer:




30. In which year was Country X's GNP the highest?

| A | B | C | D |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

Answer: ____

END OF TEST

# Mock test 2

## Business judgement

This mock test comprises 39 multiple choice questions. They require you to demonstrate a comprehension of business practice and interpret financial information from tables and graphs, using the information to answer the questions.

Allow yourself 40 minutes to complete the test.

Do not turn over the page until you are ready.

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1. Which of the following terms is an example of cash outflow?

| A | B | C | D |
|---|---|---|---|
| Employee insurance | Sales revenue | Bank loan | Tax refund |

Answer: ☐

2. What is the price of one currency relative to another currency?

| A | B | C | D |
|---|---|---|---|
| Comparison | Inflation | Exchange rate | Exercise price |

Answer: ☐

3. What is the ownership interest of shareholders in a company?

| A | B | C | D |
|---|---|---|---|
| Economic value | Equity | Exponential value | Economic profit |

Answer: ☐

4. How are cash payments made to shareholders of a firm referred to as?

| A | B | C | D |
|---|---|---|---|
| Dividends | Excess returns | Repayments | Abnormal profits |

Answer: ☐

5. What is nominal value more frequently referred to as?

| A | B | C | D |
|---|---|---|---|
| Interest value | Net value | Marginal value | Face value |

Answer: ____

6. What shows the financial flows as and when they actually happen?

| A | B | C | D |
|---|---|---|---|
| Profit and loss account | Balance sheet | Cash flow | Forecast |

Answer: ____

7. In what period are transactions recorded in profit and loss accounts?

A Period preceding the period to which they relate
B Period to which they relate
C Period following the period to which they relate
D Period in which they were paid

Answer: ____

8. What can be considered to be a snapshot of a company's finances at one moment in time, for example 31 December 2000?

| A | B | C | D |
|---|---|---|---|
| Balance sheet | Credit sheet | Capital outlays | Assets assessment |

Answer: ____

9. Which of the following definitions describes normal profit?

   A Firm can only just cover its variable costs
   B Opportunity cost of being in business
   C Excess of total profit
   D Firm can cover all its costs

Answer: ☐

10. Which of the following is a cash inflow?

| A | B | C | D |
|---|---|---|---|
| Bank loan | Bank repayment | Expenditure | Depreciation |

Answer: ☐

**Table 6.5** Cash flow 1 for small company in 2001

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Expenditure (in £)** | | | | | | | | | | | | |
| 5 Salaries | 0 | 0 | 0 | 0 | 0 | 0 | 600 | 800 | 1000 | 1200 | 1400 | 1600 |
| 6 Professional fees | 800 | 800 | 800 | 800 | 900 | 900 | 800 | 800 | 800 | 800 | 800 | 800 |

Using the above table answer the following:

11. Is the total expenditure greater for professional fees or for salaries?

Answer: ☐

12. By what percentage do salaries increase between August and September?

Answer: ☐

13. Does the percentage increase in salaries between September and October remain the same, decrease, or increase compared to August–September's increase?

Answer:

14. Calculate the National Insurance payment that the company will have to sustain in 2001, considering that NI is 5% of salaries.

Answer:

Using Table 6.6 opposite answer the following:

15. In which month do the sales double from the previous month?

Answer:

16. How much must the director loan the firm, in order for the total income to be £131,000?

Answer:

Using Table 6.7 overleaf answer the following:

17. What are the total costs for month 2?

Answer:

18. Which month yields the greatest gross profit?

Answer:

19. Which month has the greatest operating costs?

Answer:

**Table 6.6** Cash flow 2 for Bella in 1996

| **Income (in $)** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nos** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Total** |
| 1 Opening | 0 | | | | | | | | | | | | 0 |
| 2 Director's | ? | | | | | | | | | | | | ? |
| 3 Other | 80000 | | | | | | | | | | | | 80000 |
| 4 Sales | 0 | 1000 | 2000 | 2500 | 3000 | 4000 | 3500 | 3000 | ? | 4500 | 6000 | 7000 | 41000 |
| A Total | 90000 | 1000 | 2000 | 2500 | 3000 | 4000 | 3500 | 3000 | ? | 4500 | 6000 | 7000 | 131000 |

**Table 6.7** Profit and loss account, for Big Bikes (first six months)

| | Month 1 | Month 2 | Month 3 | Month 4 | Month 5 | Month 6 | H1 |
|---|---|---|---|---|---|---|---|
| Sales (in $) | 0 | 20000 | 0 | 40000 | 0 | 50000 | 110000 |
| Costs of sales | 0 | 13600 | 0 | 27200 | 0 | 33900 | 74700 |
| Operating costs (in $) | | | | | | | |
| Administration costs | 25800 | 27100 | 27100 | 28400 | 28400 | 29100 | 165900 |
| Other expenditure | 12500 | 33800 | 25200 | 17200 | 16500 | 18700 | 123900 |

## Business comprehension

### Passage 1

The number of people receiving unemployment benefit in Britain grew by 4,800 in November, the first time since 1992 that the number of claimants has grown for two straight months. Inflation waned in November, as consumer-prices grew by a modest 0.9 per cent, the lowest level since July 1963. British retail sales surged by 7.1 per cent in volume terms in the year to November, the biggest increase since mid-1988.

20. The number of people unemployed in Britain was 4,800 in the month of November.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

21. What happened to inflation during November?

| A | B | C |
|---|---|---|
| Declined | Rose | Remained stable |

Answer: ____

22. If the price of a consumer good was £100 at the beginning of November, how much did it cost at the end of the month?

| A | B | C | D |
|---|---|---|---|
| £99.10 | £100.90 | £109.00 | £190.00 |

Answer: ____

## Passage 2

The body mass index (BMI) is the ratio of a person's weight (in kilograms) to the square of his height (in metres). Obesity, defined as a BMI of more than 30, is a growing problem in many OECD countries, especially English-speaking ones. In 1999, 20 per cent of Britons were obese, compared with 7 per cent in 1980. America, though, has the biggest share of obese people: more than one-fifth of its citizens weigh in with a BMI of 30-plus.

23. The article states that more than 15% of Americans are obese.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

24. What is the correct formula for calculating the BMI of a person who weighs 55 kilograms and is 1.65 metres tall?

| A | B | C | D |
|---|---|---|---|
| $55 + (1.65)^2$ | $55 * (1.65)^2$ | $55 / (1.65)^2$ | None of the above |

Answer: ____

25. Given that the population of Great Britain is 59.8 million, how many Britons were obese in 1999?

| A | B | C | D |
|---|---|---|---|
| 11,196 | 119,600 | 1,196,000 | 11,960,000 |

Answer: ____

26. What happened to the percentage of obese people in Britain between 1980 and 1999?

| A | B | C |
|---|---|---|
| More than doubled | More than tripled | Cannot tell |

Answer: ☐

## Passage 3

The biggest figure alongside Mr Rutelli in the opposition is Piero Fassino, the new leader of the ex-communist Democrats of the Left. Mr Fassino will struggle to rejuvenate his party. Since 1996 its tally of votes has dipped from 21 per cent to under 17 per cent; in the early 1980s, it got 30 per cent. Meanwhile, Mr Rutelli's own clutch of parties on the centre-left, known as the Margherita (Daisy), shot up at the last election to win nearly 15 per cent of the votes cast.

27. Mr Rutelli and Piero Fassino are both opposition MPs and opponents.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

28. Mr Fassino will fight to restore the ex-communist Democrats.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

29. The number of votes for Fassino's party has fallen every year between 1980 and 1996.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

30. If the votes cast at the last election were 10 million, how many did the Margherita nearly receive?

| A | B | C | D |
|---|---|---|---|
| 15,000 | 150,000 | 1,500,000 | 15,000,000 |

Answer: ☐

## Passage 4

Your survey of European business and the euro (December 1st) aptly illustrates that the euro is primarily about politics and not economics. Enthusiasts claim that the euro will provide many benefits to businesses and consumers, and frequently cite reduced transaction costs as an example. But even after notes and coins are introduced there will be no automatic reduction in such costs.

31. The euro is only about politics.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

32. How can you describe the writer of this article?

| A | B | C |
|---|---|---|
| Favours the euro | Against the euro | Cannot tell |

Answer: ☐

## Passage 5

Microsoft appealed against a judgment ordering it to be split in two for acting as an illegal monopolist. The appeals court rejected the break-up, but upheld the finding that Microsoft had broken the law. A new judge ordered Microsoft to propose alternative punishment.

33. In the end, Microsoft was not found guilty of acting as a monopoly.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

## Passage 6

Recession turned to slump in Argentina, after the government imposed budget cuts and then bank controls as it battled against default on its $135 billion public debt and to retain its fixed exchange rate.

34. Argentina is suffering more as a result of its public debt rather than due to its fixed exchange rate.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

## Business finance

**Table 6.8** Extract of balance sheet for Firm X (31/12/06)

| Fixed assets (at cost) | £ |
|---|---|
| Freehold property (at cost) | 60100 |
| Plant & machinery (at cost) | 32640 |
| Depreciation | (12840) |
| Small machine | 1600 |
| Total fixed assets | 81500 |
| Current assets | £ |
| Debtors | 14000 |
| Stocks | 6000 |
| Miscellaneous | 375 |
| Total current assets | 20375 |
| Current liabilities | … |

35. What does the £14,000 on the 'Debtors' row represent?

    A Money firm X owes
    B Money firm X is owed
    C Money firm X has to pay as dividend
    D Money firm X received as debts

    Answer: ☐

36. What would the total fixed assets be without considering depreciation?

| A | B | C | D |
|---|---|---|---|
| £68,660 | £81,500 | £94,340 | Cannot tell |

Answer: ☐

37. What is the ratio of total fixed assets to total current assets?

| A | B | C | D |
|---|---|---|---|
| 1:2 | 2:1 | 1:4 | 4:1 |

Answer: ☐

38. What asset has exactly 16 times the value of 'Miscellaneous'?

| A | B | C | D |
|---|---|---|---|
| Freehold property | Small machine | Debtors | Stocks |

Answer: ☐

39. Which of the following could be found under the 'Liabilities' heading?

| A | B | C | D |
|---|---|---|---|
| Bank loan | Cash at bank | Inventory | Capital |

Answer: ☐

END OF TEST

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# Mock test 3

## Business judgement

This mock test comprises 13 multiple choice questions. It requires you to demonstrate a medium to high comprehension of business practice and to interpret financial information from tables, using the information to answer the questions.

Allow yourself 30 minutes to complete the test.

Do not turn over the page until you are ready.

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Using the Table on pages 162–63 answer the following:

1. How is row C (ie Monthly + or –) calculated?

   Answer:

2. What is the total expenditure paid in the month of May?

   Answer:

3. What two cells (being equal) indicate that the cash flow has been calculated correctly?

   Answer:

4. What happens to the percentage of 'Direct costs' between the months of May and June?

   | A | B | C |
   |---|---|---|
   | Drops by 12.5% | Increases by 12.5% | Stays the same |

   Answer:

5. What percentage of December's total expenditure is made up of Transport costs? Calculate to the nearest integer.

   | A | B | C | D | E |
   |---|---|---|---|---|
   | 1% | 2% | 3% | 4% | 5% |

   Answer:

**Table 6.9** Cash flow for Company Z in 2007

| Income Nos | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Opening balance | 0 | | | | | | | | | | | | 0 |
| 2 Other loans | 80000 | | | | | | | | | | | | 80000 |
| 3 Sales | 0 | 1000 | 2000 | 2500 | 3000 | 4000 | 3500 | 3000 | 4500 | 4500 | 6000 | 7000 | 41000 |
| A Total income | 80000 | 1000 | 2000 | 2500 | 3000 | 4000 | 3500 | 3000 | 4500 | 4500 | 6000 | 7000 | 121000 |
| Expenditure | | | | | | | | | | | | | |
| 4 Wages | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1500 | 1500 | 13000 |
| 5 Salaries | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 18000 |
| 6 NI (at 5%) | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 150 | 150 | 1550 |
| 7 Direct costs (at 40%) | 400 | 800 | 1000 | 1200 | 1600 | 1400 | 1200 | 1800 | 1800 | 2400 | 2800 | 600 | 17000 |
| 8 Marketing/Sales | 2000 | 2000 | 2000 | 1000 | 1000 | 500 | 500 | 500 | 1000 | 1500 | 1500 | 1500 | 15000 |
| 9 Utilities | 0 | 0 | 350 | 0 | 0 | 290 | 0 | 0 | 220 | 0 | 0 | 390 | 1250 |
| 10 Telephone | 100 | 0 | 0 | 200 | 0 | 0 | 250 | 0 | 0 | 290 | 0 | 0 | 840 |
| 11 Office expenses | 700 | 400 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 500 | 700 | 3900 |
| 12 Computer & fax | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2000 |
| 13 Transport | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 2400 |
| 14 Travel | 40 | 40 | 40 | 60 | 60 | 60 | 40 | 40 | 60 | 60 | 60 | 60 | 620 |
| 15 Rent | 3000 | 0 | 0 | 3000 | 0 | 0 | 3000 | 0 | 0 | 3000 | 0 | 0 | 12000 |
| 16 Business rates | 0 | 300 | 0 | 0 | 300 | 0 | 0 | 300 | 0 | 0 | 300 | 0 | 1200 |
| 17 Professional fees | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2000 |

**Table 6.9** *contd*

| Income Nos | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 Start-up costs | 2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2000 |
| B Total expenditure | 15065 | 6365 | 6415 | 8485 | 5985 | 5275 | 8015 | 5665 | 6105 | 10275 | 8510 | 6600 | 92760 |
| C Monthly + or – | 64935 | –5365 | –4415 | –5985 | –2985 | –1275 | –4515 | –2665 | –1605 | –5775 | –2510 | 400 | 28240 |
| D Cash flow | 64935 | 59570 | 55155 | 49170 | 46185 | 44910 | 40395 | 37730 | 36125 | 30350 | 27840 | 28240 | |

**Table 6.10** X's savings and income

| Month | Savings (in £) | Income (in £) |
|---|---|---|
| January | 100 | 1000 |
| February | 200 | 2200 |
| March | 300 | 3300 |
| April | 400 | 4400 |
| May | 500 | 5500 |
| June | 600 | 6600 |
| July | 700 | 7700 |

6. What is the average propensity to save (aps) in the month of January?

| A | B | C | D |
|---|---|---|---|
| 0.001 | 0.01 | 0.1 | 10 |

Answer: ☐

7. In how many months is the average propensity to save equal?

| A | B | C | D |
|---|---|---|---|
| None | Two | Four | Six |

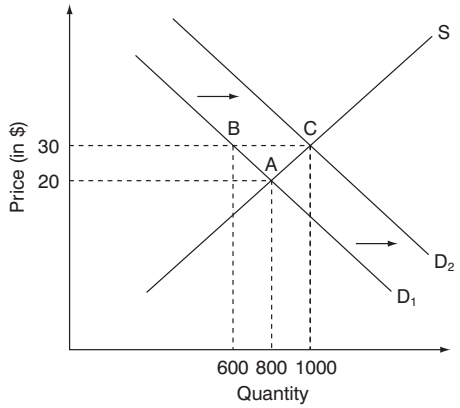
Answer: ☐

8. Given that the marginal propensity to save (mps) is 0.2, if the total income rises by £400, how much will savings be increased by?

| A | B | C | D |
|---|---|---|---|
| £20 | £40 | £60 | £80 |

Answer: ☐

Demand and supply curves for Nike shoes




9. What could cause the demand curve to shift from $D^1$ to $D^2$?

   A Decrease in price of Nike shoes
   B Increase in advertising by Nike
   C Decrease in the cost of Adidas shoes
   D Decrease in people's income

   Answer: ☐

10. If the price of Nike shoes increases from £20 to £30 (A to B), what is the price elasticity of demand for Nike shoes?

| A | B | C | D |
|---|---|---|---|
| –0.5 | 0.5 | –2 | 2 |

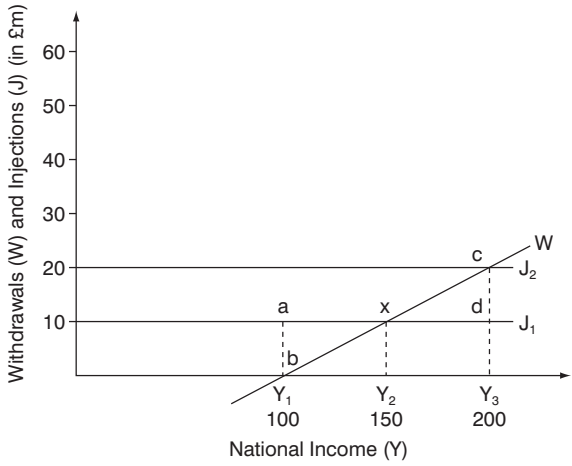
   Answer: ☐

11. Which of the following describes this price elasticity of demand for Nike shoes?

| A | B | C | D |
|---|---|---|---|
| Elastic | Inelastic | Unit elastic | Cannot tell |

   Answer: ☐

Withdrawals (W) and injections (J) of country X (in £m)




12. What is the equilibrium national income for $J_1$?

| A | B | C | D |
|---|---|---|---|
| $Y_1$ | $Y_2$ | $Y_3$ | Cannot be determined |

Answer: ☐

13. Given that injections shift from £10 million to £20 million, calculate the multiplier.

| A | B | C | D |
|---|---|---|---|
| 0.2 | 2 | 5 | 10 |

Answer: ☐

END OF TEST

# Mock test 4

## Data sufficiency

This sort of question does not require you to answer the question but simply identify which information is required in order to answer it or to state whether or not it can be answered.

This test comprises 34 questions; allow yourself 60 minutes in which to attempt all of them. The bulk of this time should be committed to the first part of the test. It demands a medium to high level of numerical competency.

Answers and explanations are provided in Part 3.

Do not turn the page until you are ready.

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## Part 1

Passage 1: There is a straight line passing through the origin and two points, A and B. Point A is (3,6), whereas the other is unknown. The line is 20 cm long.

1. Which of the following is needed in order to calculate the slope of this line?

   A Coordinates of point B
   B Intercept on the *y*-axis
   C Constants of the line's equation
   D No further information is needed

   Answer: ☐

Passage 2: A nightclub called Balance has a capacity of 360 people. The entrance costs £18 for men. Women enter for one-third of that price. Balance reaches full capacity on Thursday, Friday and Saturday nights. The remaining days of the week Balance reaches only one-third of its full capacity.

2. You are asked to calculate Balance's revenue for one night. Which of the following gives you just enough information to solve this problem?

   A Day of the week
   B Day of the week, number of men
   C Day of the week, number of women, and women's entrance price
   D Day of the week, number of men, and relevant costs

   Answer: ☐

Passage 3: The symbol § represents one of the following operations: addition, subtraction, multiplication, or division.

3. In order to determine only one value for 4 § 2, which of the following would you need to be given?

| A | B | C |
|---|---|---|
| 0 § 1 = 1 | 1 § 0 = 1 | 1 § 1 = 1 |

Answer: ☐

Passage 4: What is the value of $x$ in ΔABC if the triangle is an isosceles triangle and $x$ is the angle with the highest value?

4. With which of the following information is it possible to answer this question?

| A | B | C |
|---|---|---|
| AB = AC | second angle, $y = 44$ | Both A and B |

Answer: ☐

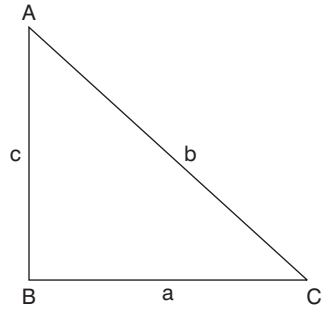
Passage 5: Andy Stanton is a real-estate agent. He recently sold a house and received a commission of 5 per cent of the selling price. He willingly gave half of his earnings to his friend, Mike, who had helped him conclude the deal.

5. With which of the following information is it possible to determine the selling price of the house Andy sold?

   A Selling price is two-thirds of the original purchase price
   B Selling price – Andy's commission = £76,000
   C Selling price was 150% of the original purchase price of £44,000
   D Mike's earnings from the deal = £10,000

Answer: ☐

Passage 6: Given the following triangle, and knowing that the area of a triangle can be found using: ½ab sin C.

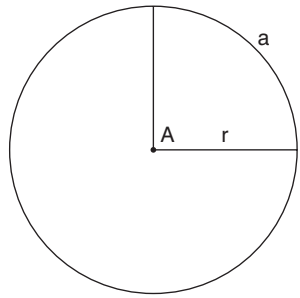



6. Which of the following information is needed to calculate triangle ABC's area?

| A | B | C |
|---|---|---|
| a and b | b and c | a and C |

Answer: ☐

Passage 7: Given the following circle, where *r* is the radius, A is an angle, and *a* is the length of the arc, calculate its circumference and area.




7. What information is needed in order to answer the above question?

   A Circle's radian
   B Circle's diameter
   C Length of the arc
   D Degree of angle A

Answer: ☐

Passage 8: Your grandparents invest £200 in your name on your 18th birthday, to be paid to you on your 21st birthday. You will also receive the interest earned at 12½ per cent per annum.

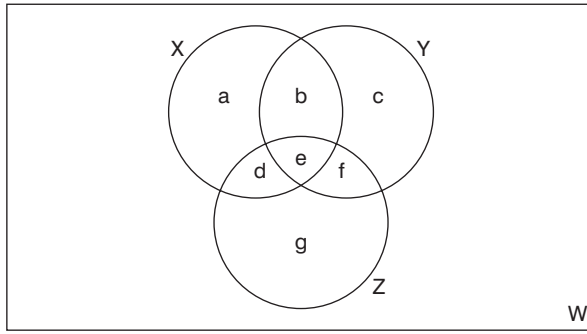
8. What further information do you need, in order to calculate how much you will receive?

   A Number of years of investment
   B Percentage rate per time period
   C Both of the above
   D None

Answer: ☐

Passage 9: A total of $t$ people use three ways of transportation to go to work in year $n$. $X$ represents the number of people that use the car. $Y$ represents the number of people that use the train. $Z$ represents the number of people that use the bus. $W$ represents the number of people that use none of the above ways of transportation and that walk to work.

How many people use both the bus and the train only to go to work in year $n$?




9. With which of the following information *alone* could you answer this question?

   A Value of $e$
   B Values of $c$ and $g$
   C Value of $f$
   D Value of $b$ and $d$

Answer: ____

10. Still referring to Passage 9, what information would be needed in order to determine the number of people that use the car or the train to go to work in year *n*?

    A $Z = 10{,}000$ and $X + Y + Z = 50{,}000$
    B $X = 25{,}000$ and $X + Y + Z = 60{,}000$
    C $X = 25{,}000$ and $Y = 3X$
    D $Z = 15{,}000$ and $Y = 2Z$

    Answer: ☐

Passage 10: Mary is twice the height of Ben. Ben is three times the height of Jack. David is the same height as Mary. How tall is Jack?

11. Which of the following statements is true?

    A With Mary's height alone, it's possible to calculate Jack's height.
    B With Ben's height alone, it's possible to calculate Jack's height.
    C With David's height alone, it's possible to calculate Jack's height.
    D Both Mary's and Ben's height are needed to calculate Jack's height.

    Answer: ☐

Passage 11: The probability of passing the Chemistry final exam is 1 in 20, whereas the probability of failing the Biology final exam is $x$. Alice is a student who wants to take the easier science class (ie the one with the easier final exam to pass).

12. What is the only extra information that Alice needs in order to decide which science class to take?

    A Probability of failing Chemistry final exam
    B Probability of passing Chemistry final exam
    C Probability of passing Biology final exam
    D Probability of passing Biology final exam and probability of passing Chemistry final exam

    Answer: ☐

Passage 12: The following set of data is given:
12, 2, 2, 8, $x$, 4

and it is given that $8 < x < 12$.

13. With the given data, which of the following is it possible to calculate?

| A | B | C | D |
|---|---|---|---|
| Range | Mode | Mean | Median |

Answer: ☐

Passage 13: Given that the base-weighted price index is calculated as follows:

$$\frac{\text{Total cost of base-year quantities at current prices}}{\text{Total cost of base-year quantities at base-year prices}}$$

Calculate the base-weighted price index of the following:

The price (in pence) for the three commodities being consumed in Country X are represented below, together with the amounts of each consumed. 1992 is the current year, whereas 1991 is the base-year.

**Table 6.11**

| **Year** | **1991 Price** ($p_0$) | **quantity** ($q_0$) | **1992 price** ($p_n$) | **quantity** ($q^n$) |
|---|---|---|---|---|
| Fish (per pound) | 240 | 20 | 290 | 25 |
| Potatoes (per pound) | *w* | *x* | *y* | *z* |
| Milk (per pint) | 27 | 200 | 29 | 190 |

14. Which of the following are needed in order to calculate the base-weighted price index?

| A | B | C | D |
|---|---|---|---|
| *w* | *x* | *y* | *z* |

Answer: ☐

Passage 14: Given that the standard deviation is calculated with the following formula:

$$\sqrt{\frac{\Sigma(x - \bar{x})^2}{\text{No. of Items}}}$$

15. Which of the following is needed to calculate the standard deviation?

    A $x$
    B mean of $x$
    C number of items
    D all of the above

Answer: ____

Passage 15: Probability of A and B = P (A) * P (B).

Series of Statements:

1. P (A) = ¼
2. P (B) = ½
3. P (A) or P (B) = ¾
4. P (A) / P (B) = ½

16. Which of the following statements is true?

    A Possible to calculate Prob. of A and B with statement #1 alone.
    B Possible to calculate Prob. of A and B with statement #1 and #2.
    C Possible to calculate Prob. of A and B with statement #1 and #3.
    D Possible to calculate Prob. of A and B with statement #2 and #4.

Answer: ____

## Part 2

Statement 1: Germany used to be the economic powerhouse of Europe. Today it is a drag. The economy shrank in the third quarter of the last year, and probably in the fourth too, pushing growth in 2001 down to about 0.7 per cent, the lowest in the EU, with little better expected in 2002. Nor can the government afford to throw Keynesian money at the problem: the budget deficit is perilously close to the 3 per cent limit set for members of the euro-zone.

17. Germany has been experiencing low growth in its economy in 2001.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

18. Germany is the only EU country to have had economic problems in the year 2001.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

19. Italy's growth rate in 2001 was not less than Germany's 0.7%.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

20. Germany's budget deficit is higher than all the other members of the euro-zone.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Statement 2: The value of global merger and acquisition activity in 2001 was $1.6 trillion, half what it was worth the previous year, according to data from Dealogic. In 2000, the inflated value of high-tech shares fuelled many a deal that now looks unwise.

21. According to Dealogic, the value of global merger and acquisition activity in 2000 was $8 billion.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

22. The value of the high-tech shares in 2000 was raised artificially.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

Statement 3: Five German banks felt the wrath of the European Commission. In its latest round of cartel-busting, the commission levied fines of $100 million (£90.4 million) for fixing commissions on the exchange of the 12 euro-area currencies since 1997. Three banks said they would appeal.

23. 60% of the German banks fined are planning to appeal.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

24. The $1 is equal to £0.904.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Statement 4: Telekomunikacja Polska announced that it would get rid of 12,000 employees next year, 20 per cent of its work-force. France Telecom, which acquired 35 per cent of the former state monopoly from the Polish government last year, had said that job cuts would come but had agreed with powerful unions that it would wait four years.

25. Telekomunikacja Polska currently has 60,000 employees.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Statement 5: In 1994, Arizona's voters passed a proposition, similar to the one in California, that raised cigarette taxes and used the revenue to fund a successful comprehensive tobacco education and control programme. Since 1996, this programme has resulted in a 22.6 per cent decrease in adult smokers, a 23.3 per cent fall in high-school smoking, and a 39 per cent drop in middle-school smoking.

26. This programme has had the least effect on adult smokers.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

27. This programme has succeeded in cutting smoking by just over 85%.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

28. This programme had more success in California.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

29. There is more high-school smoking in Arizona than there is in middle schools.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Statement 6: Between 1960 and 1995, life expectancy in poor countries rose by 22 years, largely because modern medicine prevented millions of premature deaths. In the 1950s, 16 per cent of children died before their fifth birthday; now only 4 per cent do.

30. Children now are four times less likely to die before their fifth birthday than they were in the 1950s.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Statement 7: While Argentina was stuck in its fixed-currency straitjacket, the floating *real* has helped ease worries about Brazil's current-account gap, making its exports more competitive and imports more expensive. After six years of trade deficits, Brazil enjoyed a surplus of around $2.6 billion in 2001.

31. In 1996, Brazil had a trade deficit.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

32. The increase in the Brazilian exports' competitiveness, due to Argentina's fixed-currency, helped Brazil enjoy a surplus in 2001.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ____

Statement 8: Bankruptcies and lay-offs continue to take their toll in Japan. Unemployment rose to a record high of 5.5 per cent in November, up from 4.5 per cent in October: 3.5 million workers are now without jobs. Japanese industrial production plunged by 13.2 per cent in the last 12 months, sliding to its lowest level in 14 years. Deflation continued, with consumer prices falling by 1.0 per cent over the year to November.

33. Japan's unemployment rose by 5.5% in November.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

34. Japanese industrial production has fallen in average by 1.1% each month for the last 12 months.

| A | B | C |
|---|---|---|
| True | False | Cannot tell |

Answer: ☐

END OF TEST

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# Part 3

## Answers and many detailed explanations

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# *Answers and explanations*

## Chapter 3 Quantitative reasoning

1. S (assuming the letters have not been printed in a font that alters their symmetry). Rotational symmetry is a mathematical term that simply means in the case of S that the shape looks the same twice when rotated
2. X = 4, P = 1
3. A, the exterior angle of a regular polygon. (A polygon is any shape with sides and angles. It is regular if all the sides and angles are the same. Relearn your geometry, especially if you face GMAT)
4.

| | | |
|---|---|---|
| 1/2 | 0.50 | 50% |
| 3/4 | 0.75 | 75% |
| 1/5 | 0.20 | 20% |
| 3/5 | 0.60 | 60% |
| 3/8 | 0.375 | 37.5% |
| 1/4 | 0.25 | 25% |

5. C, the middle number
6. The value of integer *W* is between 50 and 99 (note that in this instance *W* cannot equal 100 but can equal 50)
7. Less than or equal to
8. Less than
9. Greater than
10. C, reasonable positive correlation (a stronger correlation would form a straighter line on the graph)
11. 9/20
12. 11/20
13. 45% and 0.45
14. 10.5 (63 divided by 6)
15. Median = 11 (13 + 9 divided by 2), Range 17 (19 – 2)
16. A and D, 35 and 30
17. HH, TT, TH, HT (where H = heads and T = tails in all order)
18. 1/12 (P (A + B) = P(A) × P(B) = 1/2 × 1/6 = 1/12)
19. A, the same
20. E, all of these
21. 729 (learn the first few powers up to 10 in the same way as you learnt your multiplication tables)
22. 64 (learn the basic cubed values)
23. 2 to the power of 4
24. 5 m (Area = $X^2$ = 25 $m^2$, $X = \sqrt{25}$, so $X$ = 5 m)
25. A, $d = 2r$
26. 22/7
27. C–B (angles with arrows pointing in an anticlockwise direction are positive while those pointing in a clockwise direction are negative)
28. F, 6 (they are 1, 2, 4, 8, 16, 32. A common factor of a number is a number that divides into it without remainder. 1 and 32 are trivial)
29. 8 (highest common factor is highest number which divides exactly)
30. 1 and 13.
31. A prime number (a number that has only 1 and itself as common factors – you should learn the first 10)
32. 3 (they are 5, 7 and 17)

33. D, 8 (they are 2, 3, 4, 6, 8, 12, 16, 24)
34. 18
35. E, 8 (don't confuse this with $2 \times 3 = 6$; it is in fact $2 \times 2 \times 2 = 8$)
36. 32
37. 81
38. B, 81 divided by 9
39. C, 2 to the power of $4 \times 2$ to the power of 5
40. 40,079 km (double the radius to get the diameter and then multiple it by $\pi$ approximated as 3.142)
41.

| | |
|---|---|
| 5% | 0.05 |
| 17.5% | 0.175 |
| 25% | 0.25 |
| 150% | 1.5 |
| 0.5% | 0.005 |

42. 20% (117/565 = 1/5 = 0.2 = 20%)
43. 35% (126/360 = 0.35 = 35%)
44. 40%
45. 20% and 15% (56/280 = 0.2 = 20%, 42/280 = 0.15 = 15%)
46. 70% (301/430 = 0.7 = 70%)
47. 105.75 (90 + (90 × 0.175) = 105.75)
48. 97.75 (85 + (85 × 0.15) = 97.75)
49. 24 (15 + (15 × 0.60) = 24)
50. 106.4 (140 – (140 × 0.24) = 140 – 33.6 = 106.4)
51. 50.4 (63 – (63 × 0.20) = 63 – 12.6 = 50.4)
52. 13.14 (73 – (73 × 0.82) = 73 – 59.86 = 13.14)
53. 250 ($1.2X = 300$)
54. 375 ($1.12X = 420$)
55. 430 ($1.5X = 645$)
56. 1:6
57. 2:13 (divide both by HCF which is 30)
58. 3:14 (divide both by HCF which is 25)
59. 1:7 (HCF 9)

60. 5:13 (HCF 19)
61. 21:42
62. 44:66:22
63. £4.50, £3.50, £4.00
64. $x = 7$ (add 3 each side to give $3x = 21$)
65. $x = 9$ (change to $(x + 6) = 75/5$, which simplifies to $x + 6 = 15$, so $x = 9$)
66. –5 1/3 (subtract $3x$ from each side and subtract 10 from each side to give: $3x = –16$)
67. 6 3/4 (expand brackets to give $2x + 18 = 6x – 9$, add 9 to give $2x + 27 = 6x$ then minus $2x$ to get $27 = 4x$
68. $X = –4$ (remove fractions by multiplying by 8 which gives $4(x + 2) = 1 (3x + 4)$, expand brackets to give $4x + 8 = 3x + 4$, minus $3x$ to give $x + 8 = 4$)
69. Because when plotted on a graph they form a straight line
70. $Y \propto x$
71. $Y \propto \sqrt{x}$
72. $Y \propto x^2$
73. D–E (distance is equal), A–B (distance increases steadily), B–C (distance is decreasing)
74. 1,500 ($1/10 \times P = 150$)
75. 2 to the power of 5 (every two hours the new total will double)
76. Every year the currency will have 0.98 times the value of the year before, so after four years it will have $0.98^4$ times the original value. For a small percentage and a small number of years this is approximately equal to subtracting the percentage decrease each year, ie 2% per year over four years is approximately equal to 8% over four years
77. C, 1 gm
78. 5,712 (each year the new total increases by 30%)
79. Four years
80. The 70–79 group (group 7). Make sure that you revise frequency tables; they are a common business tool
81. 65 (there are 16 entries so it is between the 8 and 9 results which are both 65)
82. 10, 11.7, 11.7 (5 + 10 + 15 = 30 divided by 3 = 10, 10 + 15 + 10 = 35 divided by 3 = 11.7, 15 + 10 +10 = 35 divided by 3 =

11.7. Moving averages are used in the deduction of trends from data)

83. 75:100:25 (total sample 200)
84. 2, inter-quartile range (this method ensures that the effect of any skew (positive or negative) is limited to the relevant quartile)
85. C, 1 in 4
86. C, 1 (probability is measured on a scale of 0 to 1)
87. C, 600 $cm^2$ (there are six surfaces each with a surface area of 100 $cm^2$)
88. E, 23 ($2^4 = 16$. $16 - 9 + 16 = 23$)
89. C, 187.5 $cm^3$ (the top of the shape is half of the volume of the bottom half, so volume is $5 \times 5 \times 5 \times 1.5 = 125 \times 1.5$
90. A, 31 (it is a sequence of prime numbers)
91. B, $4x$ ($x^2$ cancels from top and bottom leaving $4x$)
92. C, 48% (80% set off, 80% of those do not break down and 75% of those arrive on time. Total therefore = $0.8 \times 0.8 \times 0.75 = 0.48$ or 48%)
93. C, 10 To get between the first and second numbers in the sequence you add 2. To get between the sixth and seventh you add 7. Following this rule, sometimes called a triangular sequence, gives the following: 1, 3, 6, 10, 15, 21, 28
94. E, 12:1 (there are $2 \times 6 \times$ blue blocks for each green block)
95. E, £13,310 (year 1 10,000 × 1.1, year 2 11,000 × 1.1, year 3 12,100 × 1.1 = 13,310)
96. C, 40 (500 cl = 5 l, 200 divided by 5 = 40)
97. C, 9% (180/2,000 × 100 = 9)
98. C, 441 $m^2$ (216 + 225 = 441)
99. D, 1,800 $m^3$ ($25 \times 12 = 300 \times 6$)
100. E, 21 (462/22 = 21)
101. A, £5,000 (profit from A = £12,000 × 25% = £3,000, £2,000 × 40% of £5,000)
102. B, £960 (loses £480 a year × 3 = £1,440 deduct this from the original cost)
103. A, 4 to 1 (365 – 73 = 292 days it will not rain, on 73 it will, therefore odds of 292:73 which simplifies to 4:1)
104. C, 3/4 ($1 - (1/2)^2 = 3/4$)

105. A, 1/4 (1/2 × 1/2 = 1/4)
106. C, 7/8 (this is an analogous question to asking, 'What is the probably of getting all tails?', 1/2 × 1/2 × 1/2 = 1/8, only here we want the opposite, ie this not happening, therefore 1 – 1/8 = 7/8)
107. C, 1/8 (answer, 1/2 × 1/2 × 1/2 = 1/8, same as all of them are tails)
108. D, $X = 1$ ($1^2 + 1 = 2$, $Y_2 = 2$)
109. B, for all $X < -1$

# Chapter 4 Data interpretation

1. A – 3 for a win, B – 1 for a draw and C – 0 for a loss
   Team F has scored no points from three losses – proving that a loss scores no points. Team E has scored only one point from one draw and two losses – proving that a draw must be worth one point. Team B, with one loss and three wins, has nine points so a win must be worth three.
2. D, 11 games
   There are many ways of working this out – one of the simplest is to add up the total number of wins, draws and losses and divide by two.
3. A, 4
   Each team must play 5 games. With two teams playing each game there must be 15 games in total, so with 11 played there must be four remaining.
4. B, 2
   With teams A and B both with one match to play and three points available for a win, either team can win.
5. B, 2
   Congratulate yourself if you got this right because these questions don't get more difficult than this. So far, E must have drawn with A and lost the other games. F has only played winning teams. Therefore E and F have not yet played each other. One of the remaining games must be E vs F. They cannot both accumulate sufficient points to be level with C and D.

6. E, 44
   32 points have already been won. If none of the remaining games are draws then an additional 12 points will be won, giving a total of 44.
7. a. November had the highest level of rainfall;
   b. September had the lowest.
8. A, November
   The increase from 1.1 inches of rainfall to 2.4 inches of rainfall is the greatest increase.
9. D, February
   The decrease from 2.1 inches of rainfall to 1.2 inches of rainfall is the greatest.
10. D, May
    The increase from 0.8 inches of rainfall to 1.0 inches of rainfall is the lowest increase.
11. B, 14.4 inches. The graph is too small to calculate the exact quantities but by estimating them you can identify B as the only suggested answer close to the estimated value.
12. A, February
    With 1.2 inches of rain, February exactly represented the average rainfall for the year.
13. a. Other; b. Council Tax
    These are the largest and smallest segments of the chart.
14. C, 25%
    C is exactly one-quarter of the chart – therefore 25% of expenditure.
15. E, £360
    25% of £1,440 = £360
16. D, £480
    If 25% of £480 is paid in tax, £360 will remain to pay the rent.
17. D, £28,800
    If 20% of all after-tax income is saved, then rent equates to 25% of 80% of after-tax income. Therefore rent at £360 per month represents 25% × 0.8 = 20% of after-tax income. Therefore after-tax income = £360 × 5 = £1,800. With tax at 25% then monthly income before tax must be £2,400 and so annual income must be £2,400 × 12 = £28,800.

18. E, £4,320
    If the household earns £28,800 before tax, then it will earn £28,800 × 0.75 after tax = £21,600. If 20% is saved then the total saved is £21,600 × 0.2 = £4,320.
19. A, zero
20. B, linear
21. C, exponential
22. B, linear
23. C, exponential
24. vii, P = 0
25. ii, P = h
26. vi, P[i] = P[i – 1] + h
27. i, P = 2h and iv, P = h × 2
28. iii, $P = h^2$
29. A, 1
    The population of culture A appears to remain static, not varying over time.
30. C, 400
    The growth of culture D is linear, with the population equivalent to twice the elapsed hours.
31. B (look for key points, such as the value of $x$ when $y = 0$)
32. E, –5
33. A
34. A, 0
35. A
36. E, 4.5 and –4.5
37. B
38. C
39. A
40. D
41. A, True
42. A, True (employment in these sectors has the three highest values)
43. A, True
44. B, False (the value of the manufacturing GDP is 30 so there are more than five prime numbers, eg 5, 7, 17, 19, 23, 29)
45. B, False

46. A, True
47. C, Cannot tell (the information given does not include an explanation of how the data was calculated so the statement cannot be judged as either true or false)
48. A, True
49. A, True (respondents were asked about seven subjects and the median result of respondents who found the information about right was 67.4%, giving a shortfall against the target of 75%)
50. B, False (the figures are percentages and do not relate to the number of respondents)
51. B, 33.3 miles
    20 min = 1/3 h; 1/3 × 100 = 33.3 miles
52. B, 1h 20 min
    30 miles/h gives 0.5 miles/min, 40 miles takes 80 min as 40 × 0.5 = 80 min = 1h 20 min
53. C, 25 miles
    After 30 min the car has travelled 50 miles and the sports car 75 miles. 75 – 50 = 25 miles
54. A (speed 3.5)
55. C (speed 2)
56. C (acceleration = 0)
57. 4
58. B, $Y = X + 1$
59. B, 0.0625 ($(-1/4)^2 = 1/16 = 0.0625$)
60. C, 2 ($2 \times 2 = 4$, $4/2 = 2$)
61. C, $Y = X^2$
62. C, 90%
63. A, True
64. C, 17th
65. E, 27th
66. B, 11th (this is the date that most flights were delayed both arriving and departing)
67. B (on average, a higher percentage of both departures and arrivals are on time during this period)
68. a. Africa; b. Europe
69. Seven decades (North American population increased from 100 million in 1900 to 200 million in 1970)

70. Eight decades (African population increased from 200 million in 1900 to 600 million in 1980)
71. Decrease (even though the population increases overall, the rate of growth decreases – in other words, the growth in population is less than the growth of population during the 1950s)
72. Europe (the percentage growth in population is lowest in Europe)
73. A
74. a. Between 9 am and 10 am; b. Between 12 am and 1 pm
75. Gain (the value of the share was higher at 5 pm than at 8 am)
76. Between 9 am and 10 am
77. Between 12 am and 1 pm
78. The first four hours of the day
79. Buy at 10 am, sell at 4 pm
80. Cable/Satellite Television has gained 5% market share
81. Public Access Television has lost 6% market share
82. Internet (has increased from 1% to 5% – a 400% increase)
83. Newspapers (has fallen from 40% to 38% – a 5% decrease)
84. A, 1.0% (decreases from 41% to 40% – a decrease of 1%)
85. D, 25% (increase from 1% to 5% = ×5 so 5 × 5% = 25%)
86. a. A, January; b. C, September
87. D, June
88. C, June & July
89. E, September
90. D, 2.3
91. C, 3.2
92. B, £7 billion
93. B, £1 billion
94. B, 4%
95. C, £75 billion (monthly borrowing is £6.25 billion at 7.5%. £6.25 billion × 12 = £75 billion)
96. D, £81 billion (the average interest rate throughout the year is 6.5%, which equates to £6.75 billion average borrowing per month × 12 = £81 billion)
97. B, inversely proportional (as interest rates increase, borrowing decreases)

# Chapter 5 Business judgement and data sufficiency

## Business judgement

### Business comprehension

1. D, Shares
2. D, Revenue
3. A, Fixed-income securities
4. B, Earnings
5. C, Purchase
6. A, Input
7. D, Balance
8. D, Increase in price levels
9. C, A few firms in the market
10. A, Staff

### Basic finance

11. D, £125,000 (50,000 + 75,000 = 125,000)
12. C, £2,175,000 (500,000 + 550,000 + 525,000 + 600,000 = 2,175,000)
13. A, 11% (total of misc. income (275) divided by [total of misc. income (275) + sales (2175) = 2450] = 0.11 or 11%)
14. B, 25 × 12 = 300, 35 × 12 = 420
15. A, 60–80% (£20 per month gives a price of £240 per year for the US user, which gives a difference of 240/420 = 60% and 240/300 = 80%)
16. C, 7,300,000 (20,000 × 365 = 7,300,000)
17. A, 6,666 h (20,000 × 20 = 400,000 minutes, 400,000 min/60= 6,666 h)
18. C, 4%
19. A, £590 million ($X$ × 1.10 = 650, 650/1.10 = 590)
20. B, £487.5 million (650 × 0.75 = 487.5)
21. B (adding up tons produced/year for all four factories = 189.5, adding up tons sold/year = 154, the difference is 35.5 tons)
22. C (Factory C has a 100% export ratio)

23. D, 50/80 = 62.5%
24. FDB represents the largest part of the chart
25. Samkob and Other
26. B, as Dansk Supermarked represents 20% of the market
27. A, as Samkob, Aldi and Other together represent exactly 25% of the market
28. D, as FDB represents 40% which equals 1,400 stores
29. B, as the three largest groups represent 75% of the market and therefore 2,625 stores

## Business comprehension

30. A, True
31. C, Cannot tell
32. C, Cannot tell (we only know that the shares have not been this low for two years and do not know the price at which they traded three years ago)
33. B, False (price was $33.65)
34. C, Cannot tell
35. C, Cannot tell
36. A, True
37. A, True
38. C, Cannot tell
39. A, True
40. C, Cannot tell (the Australian dollar may momentarily have been stronger three years ago)
41. B, False
42. C, Cannot tell
43. C, Cannot tell
44. C, Cannot tell (we know that 31% of Belgium's beer production was exported but not what percentage of Belgium's GDP was beer)

## Business judgement

45. P1 & Q3
46. E, Q5–Q2
47. B, Q2
48. A, P1

49. C, Q3
50. C, 70 units (you can simply read off the graph that at £8 per unit the output will equal 70)
51. A, £6/unit (at quantity 70, the average cost curve is at a price of 6)
52. B, £140 (a slightly harder question: profit per unit = MC – AC = 8 – 6 = 2. At a production of 70 units this gives a profit of 70 × 2 = 140)
53. B, 40 units will be produced and the firm is now making a loss as AC is higher than MC at an output of 40

## Data sufficiency

54. C, Cannot tell
55. B, False
56. C, Cannot tell
57. A, True
58. C, Cannot tell
59. A, True
60. B, False
61. C, Cannot tell
62. C, Cannot tell
63. B, False
64. A, True
65. C, Cannot tell
66. A, True
67. C, Cannot tell
68. B, False
69. C, Cannot tell
70. B, False
71. C, Cannot tell (the passage does not comment on whether or not the BTA believes the number of tourists will decrease)
72. A, True
73. B, False
74. A, True (6 lbs × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 = 12,280 lbs = 877.7 stone on day 11, compared with 18 × 40 = 720 stone which is the total weight of the elephants)

75. A, True (divide the hexagon into equal triangles and count those inside and outside the triangle)
76. B, False (the athlete averages 15 mph (30 minutes at 20 mph and 30 minutes at 10 mph). The total time taken is 1 hour, so the athlete must travel 15 miles)
77. A, True, 7.07 miles (ie the square root of $50 = 5^2 + 5^2$. The yacht has sailed along the short sides of an isosceles, right-angle triangle so Pythagorean theorem applies)
78. B, False (it would beat 31,536,000 times. Once per second × 60 = 60 times per minute × 60 = 3,600 times per hour × 24 = 86,400 times per day × 365 = 31,536,000 times per year)
79. C, Cannot tell (without knowing the fuel economy of the car it is not possible to calculate how far the car will travel on a tank of petrol)
80. B, False (25 words × 60 minutes = 1,500 words. It would take four hours at this speed)
81. A, True (15/3 × 25 = 125)
82. A, True (the sum of the angles of any triangle is 180 degrees, whilst the sum of the angles of a square is 360 degrees)
83. A, True (the total payable on a £500 loan at an APR of 20% would be £550 as the interest is constantly reducing as the loan is repaid. Paying £50 for 12 months totals £600 and so is more expensive)
84. B, False (the car will have averaged a speed of 30 mph and so will have travelled only 30 miles)
85. A, True (the car will have averaged a speed of 60 mph and so will have travelled 120 miles)
86. B, False (the value of the savings will depreciate by the difference between the rate of inflation less the rate of interest. The money borrowed will depreciate at the full rate of inflation)
87. A, True (16% of £500,000 is £80,000 – covering the business costs)
88. C, Cannot tell (the return on the investment would depend on the value on the variable Bank of England base rate)
89. B, False

90. A, True (imagine a box drawn around the triangles. The volume of the box would be $2x^2$. The triangles would occupy exactly half the box so their combined area would be $x^2$)
91. A, True (discrete variables are distinct units on the range)
92. A, True (continuous variable data can be given a value at any point on the range)
93. B, False (the symbol represents the sum of values for $x$ and is one of the basic terms in statistics so should be familiar)
94. A, True (this is a common function on any scientific calculator and one of the essential symbols in statistics)
95. D, None of these (you could say all of them but in data analysis average is considered an imprecise term. Instead use mean, mode or median, whichever is the more appropriate to the given situation)
96. B, False (multipliers can give rise to both increases and decreases)
97. A, True
98. A, True
99. B, False (the two statistical terms, independent (events) and mutually exclusive (events), have been interchanged to create the false statement. Change them back and you get the true statements. Events are independent if the outcomes have no effect on each other. Mutually exclusive events cannot happen at the same time)
100. A, True (all numbers have factors in that they are divisible by 1 and themselves)
101. A, True
102. B, False (the first two statements are incorrect, the third is correct)
103. B, False (the first and third statements are true and the second statement is false. A range contains four quartiles)
104. A, True
105. B, False (the first statement is correct but when a positive skew occurs the mean exceeds the median and when a negative skew occurs the mean is less than the median)
106. B, False (probability and possibility are not interchangeable terms although often confused)

107. C, Cannot tell
108. A, True
109. A, True
110. C, Cannot tell (we are only told that the UK economy has been outperforming the other major economies)
111. C, Cannot tell (you should only refer to the information given in the passage. The definition of recession given in the previous passage would allow you to identify the question as true but you have to be careful not to do this)
112. A, True (even though the UK economy is said to be the fastest growing of the G7 the rate of growth has still slowed from 2.9% to 2.3%)
113. C, Cannot tell (the passage does not state whether the UK economy grew or contracted during previous recessions)
114. C, Cannot tell
115. A, True
116. B, False
117. H
118. F
119. D
120. B (14 passengers at 45p would be more than £6)
121. A (14 passengers at 25p would be less than £4)
122. D (there are only 14 passengers on the bus to start with – if 8 have already left then no more than 6 can leave after them)
123. C (8 passengers leaving at the last stop would be more than £6)
124. C (in (1) and (2) together)
125. A (in (1) but not in (2))
126. E (in none of the statements)
127. B (in (2) but not in (1))
128. E (in none of the statements)
129. A (in (1) but not in (2))
130. E (in none of the statements)
131. E (in none of the statements)
132. C (in (1) and (2) together)
133. D (in (1) and (2) separately)
134. E (in none of the statements) – you still need the numerical value of Y to determine X

135. E (in none of the statements)
136. A (in (1) but not in (2))
137. B (in (2) but not in (1))
138. D (in (1) and (2) separately)
139. E (in none of the statements)
140. B (in (2) but not in (1))
141. C (in (1) and (2) together)
142. B (in (2) but not in (1))
143. D (in (1) and (2) separately)

# Mock test 1

## Data interpretation

1. A (can clearly be seen from the table)
2. C (can clearly be seen from the table)
3. D (500 (demand at 8p) – 350 (demand at 12p) = 150 tonnes; decrease rather than increase because as price rises, demand decreases)
4. C (the price where the quantity demanded equals the quantity supplied; the price where there is no shortage or surplus)
5. A (500 (demand at 8p) – 200 (supply at 8p) = 300; shortage for the price is below the equilibrium price of 12p)
6. D (surplus created at 16p = 530 – 200 = 330 tonnes. Surplus created at 20p = 700 – 100 = 600 tonnes. Therefore, surplus will increase by 270 tonnes)
7. B (as is clearly illustrated from the UK's first bar in the graph)
8. A (as the graph clearly shows that Japan has the highest second bar (approximately 11%))
9. D (West Germany is the only country to experience this drop in average growth rate; 8% for 1953–58, whereas 6% for 1958–63)
10. D (as the graph clearly shows; approximately 7% for 1953–58, whereas approximately 11% for 1958–63 (4% increase))

11. D (as in all three years the fourth quarter has the highest sales revenue (283, 288 and 290 for 1992, 1993 and 1994 respectively))
12. C (137 is the lowest sales revenue during 1993)
13. A ((264 + 227 + 141 + 290)/4 = 230.5)
14. A (in 1992 the company has the largest difference between highest and lowest values; 153 compared to 151 and 149 in 1993 and 1994 respectively)
15. A (put in ascending order = 130, 220, 256, 283; therefore (220 + 256)/2 = 238 is the median for 1992)
16. B (1272/12 = 106 mm)
17. B ((24 hours/1 day) × 6 days = 144 hours; therefore, having 145 hours of sunshine, October is the correct answer)
18. B ((16 – 20)/20 = –0.2; therefore, decrease of 20%)
19. A (July has 230 hours of sunshine and four times less would be 57.5 hours; therefore, having only 56 hours of sunshine, January is the correct answer)
20. B (12,500 minutes × (1 hour/60 minutes) = 208.3 hours; only July and August have over 208.3 hours of sunshine)
21. C (average # of students per ins. = (total # of st./total # of ins.); Moldova = (3900/39) = 100 students)
22. D (currently, there are approximately 185 students per institution. In order to have the 'ideal' institutions with 100 students each, there must be a total of 13 institutions (1300/13 = 100). Therefore, 13 – 7 = 6 new institutions are needed)
23. D (Slovenia's annual fees range between $2,340 and $7,020 ($4,680). This is the biggest range between these countries; Hungary would be second with a range of $4,000)
24. D (despite the fact that the annual fees in Romania are low ($210). There is a very high number of students (130,100). Therefore, their government will be receiving: $210 × 130,100 = 27,321,000)
25. B ($ per institution = (# of students × annual fee)/# of institutions; [28,000 * ((4,800 + 800)/2)]/32 = $2,450,000)
26. A (6% rise in fees will result in fees costing $1,113 and number of students dropping to 14,308. Before the 6% rise, institutions are receiving: 1,050 × 14,600 = $15,330,000.

After the 6% rise, institutions are receiving: 1,113 × 14,308 = $15,924,804. Therefore 6% rise causes institutions to *gain*: 15,924,804 – 15,330,000 = $594,804)

27. A (the first bar indicates that the 1998 GDP increased 4% on the previous period (ie 1997))
28. B (the second bar indicates that there was a 3% drop on the previous period (1998). Therefore, the GDP of 1998 ($500 million) became $485 million (500 – (500 × 0.03)))
29. B (the graph clearly indicates that in year 7 there was a peak in both exports and investments in China)
30. D (despite the fact that Country X experienced the greatest increase in GNP in Year 2 (6% increase), the GNP continued increasing in Years 3 and 4. Therefore, Country X's GNP was highest in Year 4)

# Mock test 2

## Business judgement

1. A (employee insurance)
2. C (exchange rate)
3. B (equity)
4. A (dividends)
5. D (face value)
6. C (cash flow)
7. B (period to which they relate)
8. A (balance sheet)
9. B (opportunity cost of being in business)
10. A (bank loan)
11. Professional fees (total expenditure for salaries is £6,600 whereas for professional services it is £9,800)
12. 25% ((1000 – 800)/800 = 0.25 = 25%)
13. Decrease (% increase in September–October's salaries = (1200 – 1000)/1000 = 0.20 = 20%. Since August–September's increase was 25%, September–October's percentage increase has actually decreased in comparison (ie 25% to 20%))

14. £330 (of National Insurance total of £6,600. Therefore, NI = 6,600 × (0.05) = £330)
15. March (sales double in March ($2,000) compared to previous month of February ($1,000))
16. $10,000 (Director's loans + Other loans = Total income (in Jan). Therefore, 90,000 – 80,000 = $10,000)
17. $74,500 (Costs of sales + Administration costs + Other expenditure = Total costs. 13,600 + 27,100 + 33,800 = $74,500)
18. Month 6 (Gross profit = Sales – Cost of sales. Month 2 = 20,000 – 13,600 = $6,400. Month 4 = 40,000 – 27,200 = $12,800. Month 6 = 50,000 – 33,900 = $16,100)
19. Month 2 (Operating costs = Administration costs + Other expenditure. Month 1 = $38,300. Month 2 = $60,900. Month 3 = $52,300. Month 4 = $45,600. Month 5 = $44,900. Month 6 = $47,800)

## Business comprehension

20. B (false)
21. A (declined)
22. B (£100.90)
23. B (false)
24. C ($55/(1.65)^2$)
25. D (11,960,000)
26. A (more than doubled)
27. A (true)
28. A (true)
29. C (cannot tell)
30. C (1,500,000)
31. B (false)
32. B (against the euro)
33. B (false)
34. C (cannot tell)

## Business finance

35. B, Money firm is owed ('Debtors' indicates the money that should be received by its debtors. Cash has not been received this year, but it is accounted for in the balance sheet)
36. C, £94,340 (in order to calculate total fixed assets without depreciation, you add back depreciation (for it is negative, indicated by the fact that it is in parenthesis) to the total fixed assets. Therefore: TFA + Depreciation = 81,500 + 12,840 = 94,340)
37. D (since total fixed assets are four times total current assets, their ratio is 4:1 (ie 81,500:20,375 = 4:1))
38. D, Stocks (by multiplying the value of 'Miscellaneous' (375) by 16, it is possible to determine that it is the value of 'Stocks'. 375 * 16 = 6,000)
39. A, Bank loan (current liabilities represent payments that the firm will have to make within one year. Therefore, the only plausible answer is the bank loan)

# Mock test 3

## Business judgement

1. By subtracting total expenditure from total income
2. 5,985 (can be found in the total expenditure (row B) under May)
3. The last cell of Row C and D (ie 'Monthly + or –' and 'Cash flow'). They are always equal, if the cash flow is calculated correctly
4. A, Drops by 12.5% ((1,400 – 1,600)/1,600 = –0.125 = –12.5%)
5. C, 3% (Transport costs/Total expenditure = 200/6,600 = 0.030303… = 3%)
6. C (aps = Savings/Income January = 100/1,000 = 0.1)
7. D, six (aps is approximately 0.09 for every month except January (6 months in total))
8. D (mps = $\Delta S/\Delta Y$ 0.2 = S/400. Therefore, savings will be increased by £80)

9. B (if Nike shoes are heavily advertised, demand is likely to rise; instead the decrease in price of Nike shoes will only result in a movement along the demand curve (D))
10. A (price elasticity of demand = (% QD)/(% P)Nike shoes = (0.25)/(0.5) = –0.5. Since demand curves are generally downward sloping, elasticity of demand will generally be a negative figure)
11. B (it is inelastic because the value is less than one, indicating that a change in price causes a proportionately smaller change in the quantity demanded)
12. B, $Y_2$ (equilibrium national income is where withdrawals equal injections)
13. C (multiplier is the number of times by which a rise in national income exceeds the rise in injections that caused it: Multiplier = $\Delta Y / \Delta J$. Country X = (200 – 150)/(20 – 10) = 50/10 = 5)

# Mock test 4

## Data sufficiency

### Part 1

1. D, No further information is needed (slope of a line (M) = $(y_1 - y_2)/(x_1 - x_2)$. Given that the line passes through the origin, the coordinates of point B are not needed in order to calculate the slope. M = (6 – 0)/(3 – 0) = 6/3 = 2)
2. B, Day of the week (number of men – revenue is calculated by multiplying P * Q; therefore, if you are given the number of men present that night, knowing the day of the week under consideration (ie number of total people present), you can determine the number of women present that night. With this information, you can then calculate the revenue for that night. C and D give unnecessary information, for the women's entrance price is given in the passage and costs are not needed when calculating revenue)

3. A (this would confirm that § represents only the addition sign. 0 + 1 = 1, 0 – 1 = –1, 0 * 1 = 0, 0/1 = 0. Therefore, it would then be possible to calculate 4 § 2. Knowing it is an addition sign, the result is 6. The other two equations do not establish § as being a precise sign. For B it could be either addition or subtraction, and for C it could be either multiplication or division)
4. B only. A is the definition of an isosceles triangle.
5. B, C & D (B provides the following formula: sp – (0.05 * sp) = 76,000. Therefore, it is possible to solve for sp. selling price (sp) = 80,000. C provides the following formula: sp = 150% (44,000). Therefore, it is possible to solve for sp. selling price (sp) = 66,000. D provides the following information: Andy's earnings = 10,000 × 2 = 20,000 sp (0.05) = 20,000. Therefore, it is possible to solve for sp. selling price (sp) = 400,000)
6. A and B (in order to calculate the area: A, B and C are needed. Given A and B, we can first calculate A and then use this to calculate C (the missing variable). Calculate A, using the sine rule: A/Sin A = B/Sin B (we know B = 90° and are given A and B). Then, knowing A and that A + B + C = 180, it is possible to calculate C. This will result in us knowing all three of the variables necessary for calculating the area: A, B, and C. Given B and C, we can calculate C directly. Calculate C, using the sine rule: C/Sin C = B/Sin B (we know B = 90° and are given B and C). However, we are still missing A in order to calculate the area. Therefore, calculate A, using the cosine rule: $a^2 = b^2 + c^2 – 2bc \cos A$ (we are given B and C and A can be found since we now know B as well as C). This will again result in us knowing all three of the variables necessary for calculating the area: A, B and C)
7. B (circle's diameter – circle's circumference = $2r$ and Area = $r^2$. Therefore, with the diameter, it is possible to calculate the circle's radius ($r$) and consequently calculate both circumference and area)
8. D, None (compound interest is calculated as follows: $A = P(1 + r/100)^n$, where $A$ = amount (final sum in the investment); $P$ = principal (starting sum); $r$ = percentage rate; $n$ = time

period. Therefore, since $P$, $r$ and $n$ are given in the passage, no further information is needed)

9. C, Value of $f$ (the word *and* means intersection between bus and train, and is depicted by the area $e + f$. However, $e$ represents the number of people that use the car as well as the bus and train. Since the question asks for bus and train *only*, the answer is $f$, the intersection of bus and train users and none other)
10. A and C (the word *or* means union between car and train, and is depicted by the area $a + b + c + d + e + f$. Therefore, we need to know both the number of people that use the car ($X$) as well as the number of people that use the train ($Y$), in order to calculate the number of people that use the car *or* the train (ie # of car users + # of train users = $X$ + Y). A gives us the value of $X + Y$ directly, if we plug Z into the formula: $X + Y = 40{,}000$. C gives us the value of $X$ and $Y$ individually: $X = 25{,}000$ and $Y = 3(25{,}000) = 75{,}000$. Therefore, we can calculate that $X + Y = 100{,}000$)
11. A, B, and C (knowing Mary's height alone, it is possible to calculate Ben's (Mary = 2 Ben). Then with Ben's height, it is possible to calculate Jack's height (Ben = 3 Jack). Knowing Ben's height, it is possible to calculate Jack's height directly (Ben = 3 Jack). Similarly to A, knowing David's height alone, it is possible to calculate Jack's height. This is because David and Mary have the same height; therefore, with Mary's height it is possible to find Ben's and consequently Jack's)
12. C (the only *extra* information which the student needs before making a decision is the probability of passing the Biology final exam. The probability of passing the Chemistry final exam (b) is given in the passage (1 in 20 = 5%) and the probability of failing the Chemistry final exam (a) is not needed (even if it was needed, it could be calculated from the passage = 95%). Therefore, the only correct answer would be C. With this information, the student could evaluate which science class is easier)
13. A, B and D (the range, mode and median can be calculated without knowing the exact value of $x$. Only the mean

requires the $x$ value to be explicitly given. A – The range is the difference between the highest and lowest values in a distribution; therefore, it would be 12 – 2 = 10 regardless of $x$'s value for it is less than 12. B – The mode is the value that occurs most often; therefore, it would be 2 regardless of $x$'s value. $x$ is between 8 and 12 and thus there is no possibility of it being like a number already given in the set of data. D – The median is the middle value when the data has been arranged in order of size; therefore, in 2, 2, 4, 8, $x$, 12, it would be (8 + 4)/2 = 6. Since $x$ is definitely greater than 8, its value does not need to be known when calculating the median of this set of data)

14. A, B and C (only the quantity of potatoes consumed in 1992 (ie current quantities ($z$) is not needed). This is because the base-weighted price index is calculated as follows: $\Sigma p_n q_0 / \Sigma p_0 q_0$. A – $w$ is needed in order to calculate $p_0$ (ie base-year price), which is needed. *B* – $x$ is needed in order to calculate $q_0$ (ie base-year quantity), which is needed. *C* – $y$ is needed in order to calculate $p_n$ (ie current price), which is needed)
15. D (in order to calculate the standard deviation of a set of data, we need the value of $x$, the mean of $x$ (ie $x$), and the number of items in the set of data)
16. B, C and D (these statements are all true. There is sufficient data provided in B, C and D, but not in A.
    B – Given that P (A) = ¼ and that P (B) = ½, it is possible to calculate P (A and B). P (A and B) = P (A) * P (B) = 0.125).
    C – Given that P (A or B) = ¾, we know that P (A) + P (B) = ¾. Therefore, knowing P (A) = ¼, it is possible to calculate P (B).
    ¼ + P (B) = ¾
    P (B) = ¾ – ¼
    P (B) = ½
    Hence, now knowing both P (A) = ¼ and P (B) = ½, it is possible to calculate P (A and B). P (A and B) = P (A) * P (B) = 0.125.
    D – Given that P (B) = ½ and that P (A) / P (B) = ½, it is possible to calculate P (A).

P (A) / P (B) = ½
P (A) / ½ = ½
P (A) = ½ * ½
P (A) = ¼ = 0.25

Therefore, now knowing both P (A) = ¼ and P (B) = ½, it is possible to calculate P (A and B). P (A and B) = P (A) * P (B) = 0.125)

## Part 2

17. A, True
18. C, Cannot tell
19. A, True
20. C, Cannot tell
21. B, False
22. C, Cannot tell
23. A, True
24. A, True
25. A, True
26. A, True
27. C, Cannot tell
28. C, Cannot tell
29. C, Cannot tell
30. A, True
31. A, True
32. A, True
33. B, False
34. B, False (accumulative interest would give a value more like 1.04% a month)

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